ENGINEERING NEWS-RECORD

N.Y. Port Authority: 40 and still building p.26, 38

A McGRAW-HILL PUBLICATION

STEVENS RICE GS N
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313 • FIRST ST
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Economy, durability, easy maintenance, functionalism—*all* are elements of this handsome new sports stadium at Maple Avenue Field, Altoona, Pa. Construction time was cut to approximately *one month* by the use of three-foot-wide prestressed box beams, with molded-in steps, resting on concrete columns . . . a deck formed of prestressed channel beams . . . precast seat supports . . . and a four-foot parapet of prestressed concrete double tee beams placed on edge. The contractor used Penn-Dixie cement.

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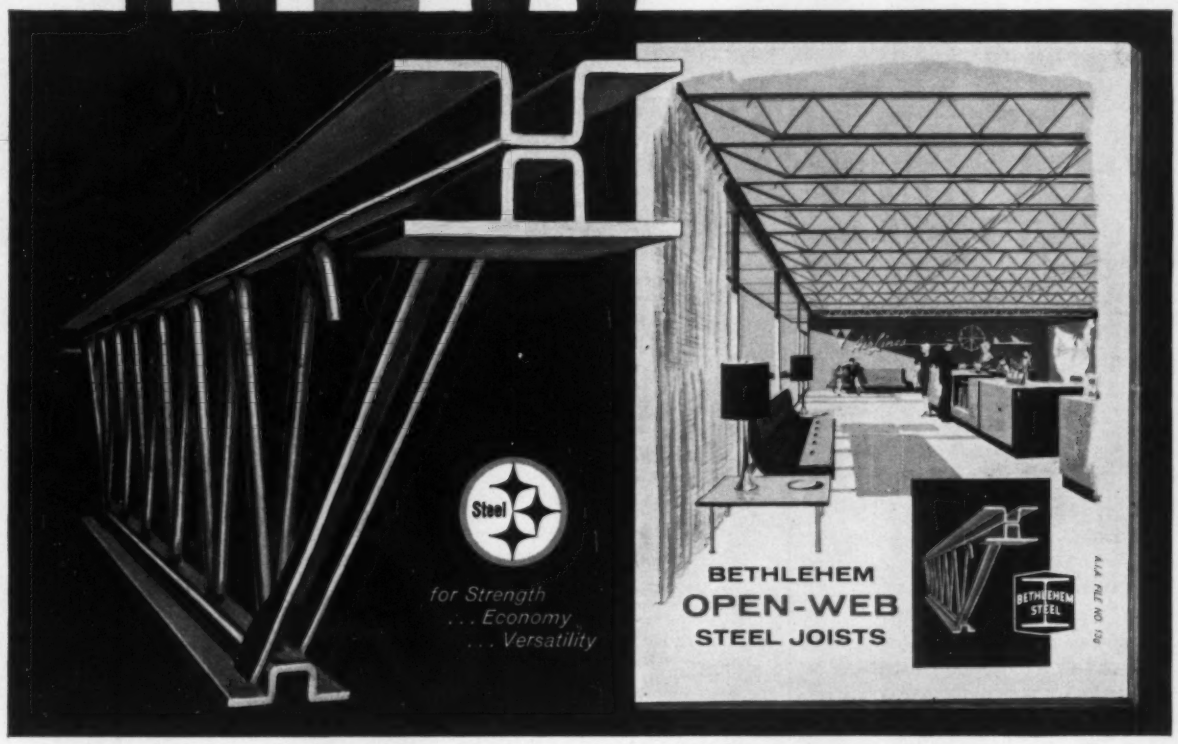
Engineer: *Frederic A. Nassaux & Associates, Consulting Engineers, 312 Trust Bldg., Chambersburg, Pa.*

NEW-



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EIGHTY-SEVENTH YEAR OF PUBLICATION

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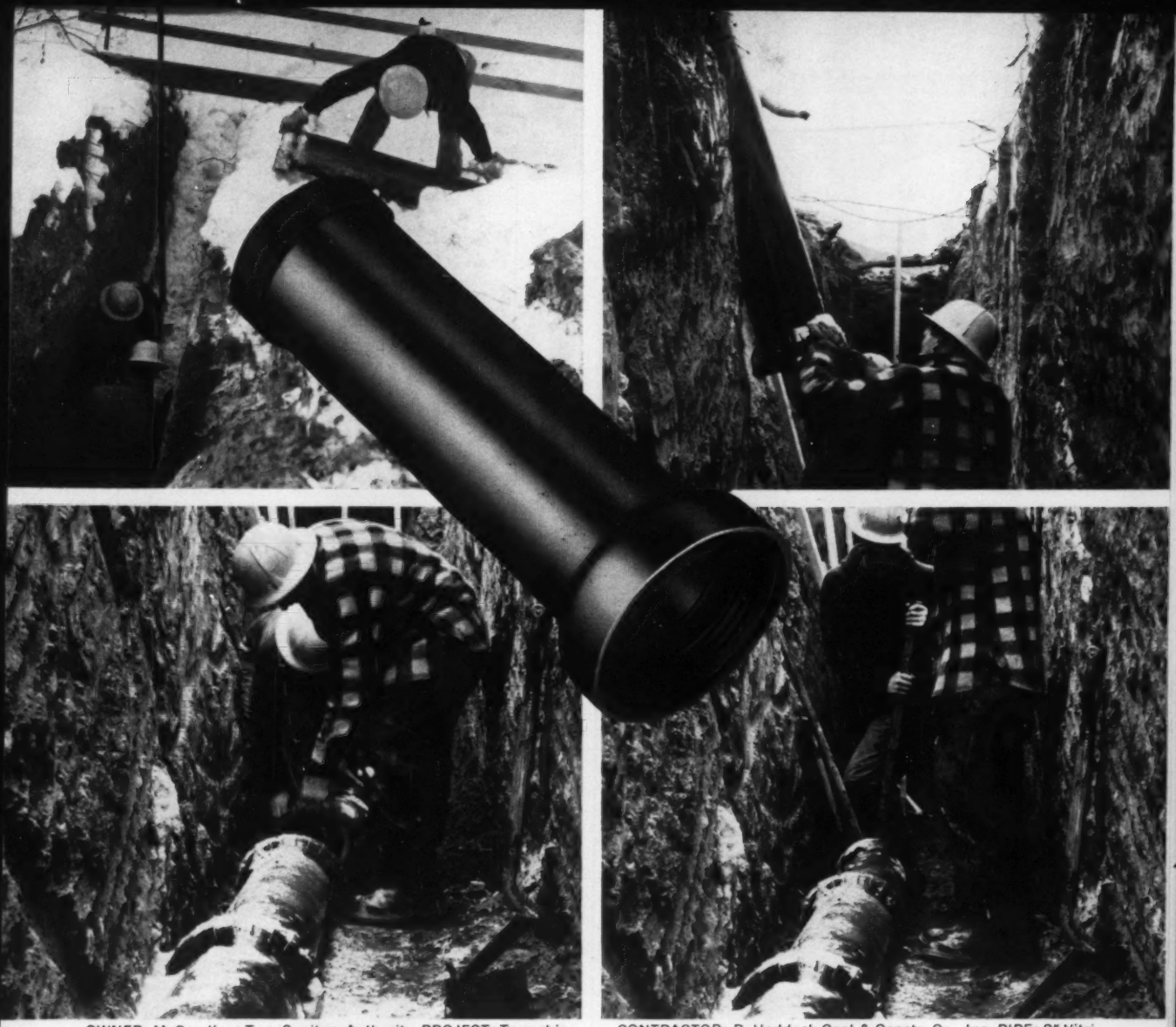

OWNER: McCandless Twp. Sanitary Authority. PROJECT: Township Sewage System, Allegheny County, Pa. ENGINEER: Wm. J. Murdock.

CONTRACTOR: P. Haddock Coal & Constr. Co., Inc. PIPE: 8" Vitrified Clay Pipe with Uniloc Coupling.

For leakproof joints that "go home" fast . . . nothing beats U. S. Uniloc Flexible Couplings!

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BRUISING STRENGTH!"

That's how B. L. Anderson sums up the dependable performance of his 5 Link-Belt Speeder rock shovels

Not too long ago we looked in on one of the midwest's most progressive quarry operators. Purpose of the visit? Ask B. L. Anderson how his year-old Link-Belt Speeder LS-98 one-yard rock shovels are doing in his multiple quarry operation in Iowa.

WHAT ABOUT CAPACITY?

"We're getting more than we expected. We're surprised at their high capacity. We lean strong to a two-shovel operation — one on each side of the crusher. We're now feeding about 300 tons an hour with the Link-Belts . . . could load up to 4,000 tons a day.

"Those Speed-o-Matic power-hydraulic controls give our production a shot in the arm. They're a lot easier to handle . . . they keep our operators fresh. I don't know how other companies can go on making the old type."

WHAT ABOUT MAINTENANCE?

"We're happy with the low maintenance. The heavy dust doesn't bother the clutches. Our operators spend very little time adjusting the clutches.

"These rigs are built to take a pounding. Before we got our Link-Belts we used to come in for repairs at the end of the year. We won't be coming in this year!"

WHAT ABOUT POWER?

"Plenty of that! Our engines are equipped with hydraulic couplings for better shock absorption. Even with the heaviest loads we don't stand the rigs on end."

No matter where we go, who we ask, the answer is the same: "Link-Belt Speeder rock shovels give you peak capacity and profits, less trouble." See your Link-Belt Speeder distributor for full details. Or write Link-Belt Speeder Corporation, Cedar Rapids, Iowa. 105-61N

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converts into tractor-shovel

LOADER or DOZER . . . which *one* do you use? Or, do you use *both?* If so, here's an important money-saving option . . .

Now you can get *both*, a pusher-dozer and a loader, in *one machine* to help reduce your equipment investment. Two outstanding, high-production units for little more than the price of one!

The new Hough D-120 "PAYDOZER" is a powerful, rubber-tired tractor for bulldozing, push-loading and towing. An optional conversion package is available to change it into a tractor-shovel in a relatively simple and economical manner. The change-over can be completed in less than two 8-hour working days.

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AS A TRACTOR-SHOVEL — The H-120 (12,000-lb. operating capacity) is a *proven* "wonder on wheels" because of its greater power, longer reach, higher dump and better visibility. Power assist on all controls — steering, braking and shifting — helps this unit set new performance records for output, economy and operating ease.

There are many additional design and performance features in the new D-120 "PAYDOZER" that a nearby Hough Distributor would like to explain to you. Contact him or return the coupon for complete details.

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4-G-2

Reader Comment

There's a Difference

SIR—Concerning your article "Plastic Plugs Pipeline Cracks" (ENR Apr. 6, p. 45), I would like to offer a word of caution.

It is hoped that readers will not overlook the first sentence of the second paragraph, which starts: "The pipe was cast *monolithically*. . ." (my italics). I fear that the terms "pipe" and "concrete pipe" may mislead many readers.

The pipe described is not conventional precast concrete pipe, but is more properly called cast-in-place closed conduit. It is a non-reinforced structure, generally used to convey irrigation water in rural areas. Because it is not reinforced and because of the method of construction, its use should be subject to certain rather severe limitations that do not apply to precast concrete pipe. It is for this reason that a definite distinction should be made between the two products.

JOHN G. HENDRICKSON, JR.
Director of Engineering-Research
American Concrete Pipe Association
Chicago 1, Ill.

Crosstie Tempest

SIR—I am concerned over the spread appearing on the April 6 cover. The statement, "Railroads take to prestressed ties," is probably one of the greatest overstatements ever made. The article on page 32 does absolutely nothing to substantiate the cover statement. The only reference I can find as to their use in systems of the American railways is in the last paragraph. "The MR-1 crossties are presently in use on U. S. railroads from coast to coast. Negotiations currently under way would extend their use into several foreign countries." Such a statement hardly justifies the line on your cover.

I would estimate that somewhere between 15 million and 20 million ties were renewed in lines. It might be well for your staff writer to check with the various railroads to find out just how few of these ties were of concrete.

We in the wood preserving industry are justifiably proud of our record. For many years all railroads operated on untreated ties and the life expectancy, depending upon the species, would run anywhere from two to ten years. With

(Reader Comment continued p. 10)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Q: What do Goodyear Earthmover Rims have that no others have?

A: MORE times FOUR

1. MORE rims on the job: More tons are hauled on—more earth-moving equipment rides on Goodyear rims than on any other kind. Result: You reap the benefits of the widest, soundest experience in rim design, manufacture and use.

2. MORE kinds of rims: Maximum rim performance stems from proper specification. Goodyear makes the *only complete line* of earthmover rims. Result: The choice that permits you to get exactly the right rim for the job.

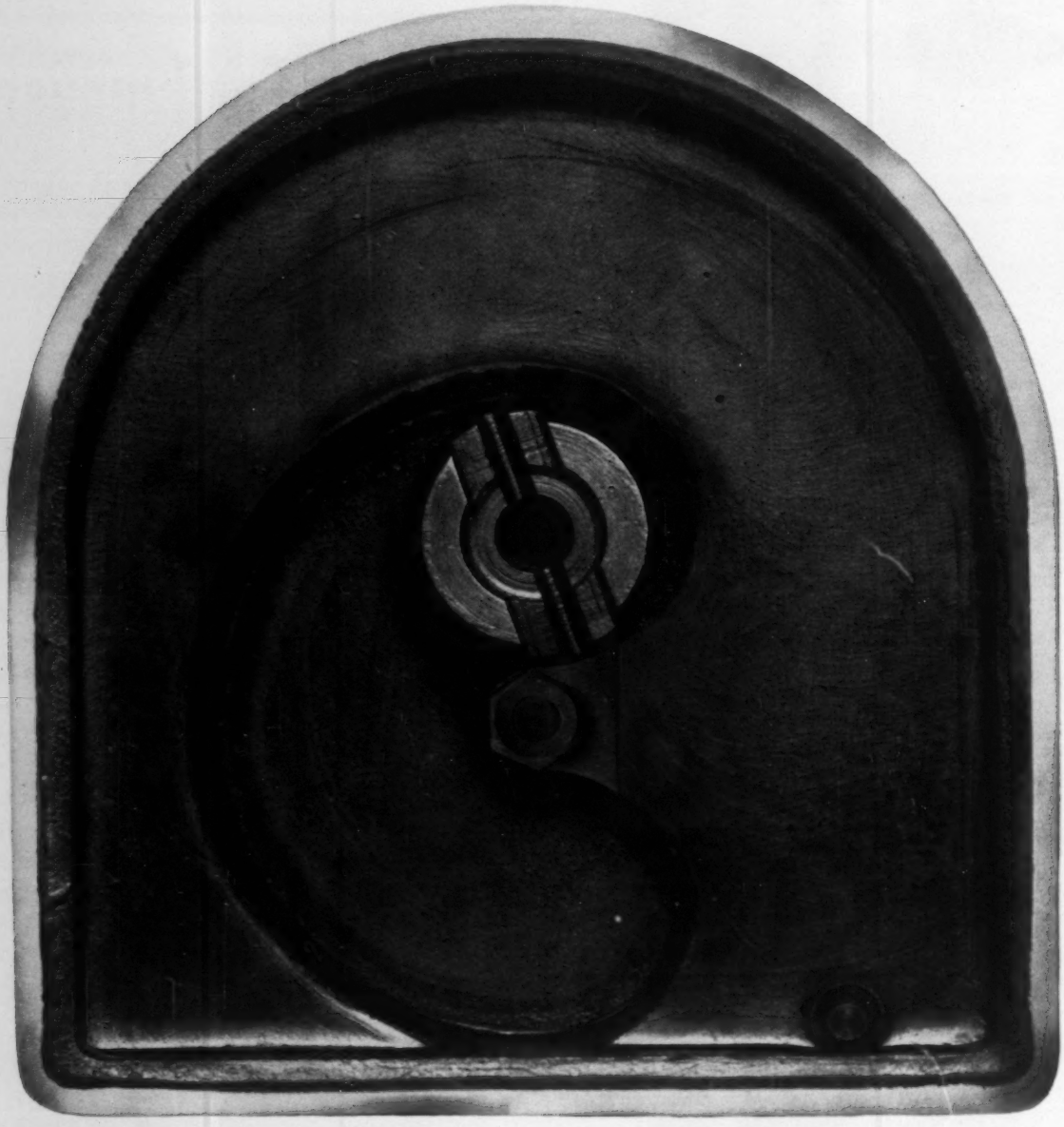
3. MORE rim engineering help: Goodyear has more engineers designing *and selling* rims than any other company. And they know tires, too. Result: The help you need in choosing the right rim for top performance—longer tire life.

4. MORE rim "firsts": The first *true* earthmover rim, the first 5° rim, the first tubeless rim—in fact, every major earthmover rim advance was made by Goodyear. Result: The very latest in rim design and manufacture at work, for you.

What better reasons for choosing Goodyear as your rim supplier? Only these: The desire and ability to design and build any rim that may be needed for *tomorrow's* earth-moving equipment. No matter what your rim needs or plans, you'll find it pays to call on Goodyear. See your local rim distributor, or write: Goodyear, Metal Products Division, Akron 16, Ohio.

Lots of good things come from

GOODYEAR



What it is

The business end of a powder-actuated tool, made by Ramset Fastening System. It's called the Duo-Jobmaster.®

What it does

Makes fastenings to steel and concrete. You can attach furring strips to concrete in less time than it takes to tell about it. Or to steel. Sprinkler pipes too. And door bucks. Curtain wall brackets. Heating ducts. *Almost anything.*

The fastenings are made with male or female threaded studs. Or with drive pins (nails). Over 140 different fasteners are currently available.

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The fastener and a 22 calibre blank cartridge are inserted in the tool. A squeeze of the trigger and the fastener is in. This includes studs and drive pins that are over 4 inches long! Numerous interlocks prevent it from being operated prematurely. And easily interchangeable barrels convert it from ¼″ to ⅜″ work.

What it saves you

Time, money, effort. No time consuming drilling or plugging is required. There are no expansion bolts to insert. In some cases fastenings can be made every 15 *seconds*. Others take a little longer.

Five years of extensive use by contractors have shown that the fastenings made by this tool are at least the equal of those made by any other method. But it makes them faster and with vastly less effort. It's made by Ramset and it's the finest powder-actuated tool in existence.

Write for more information or call your local Ramset dealer. He's listed under "Tools" in The Yellow Pages.

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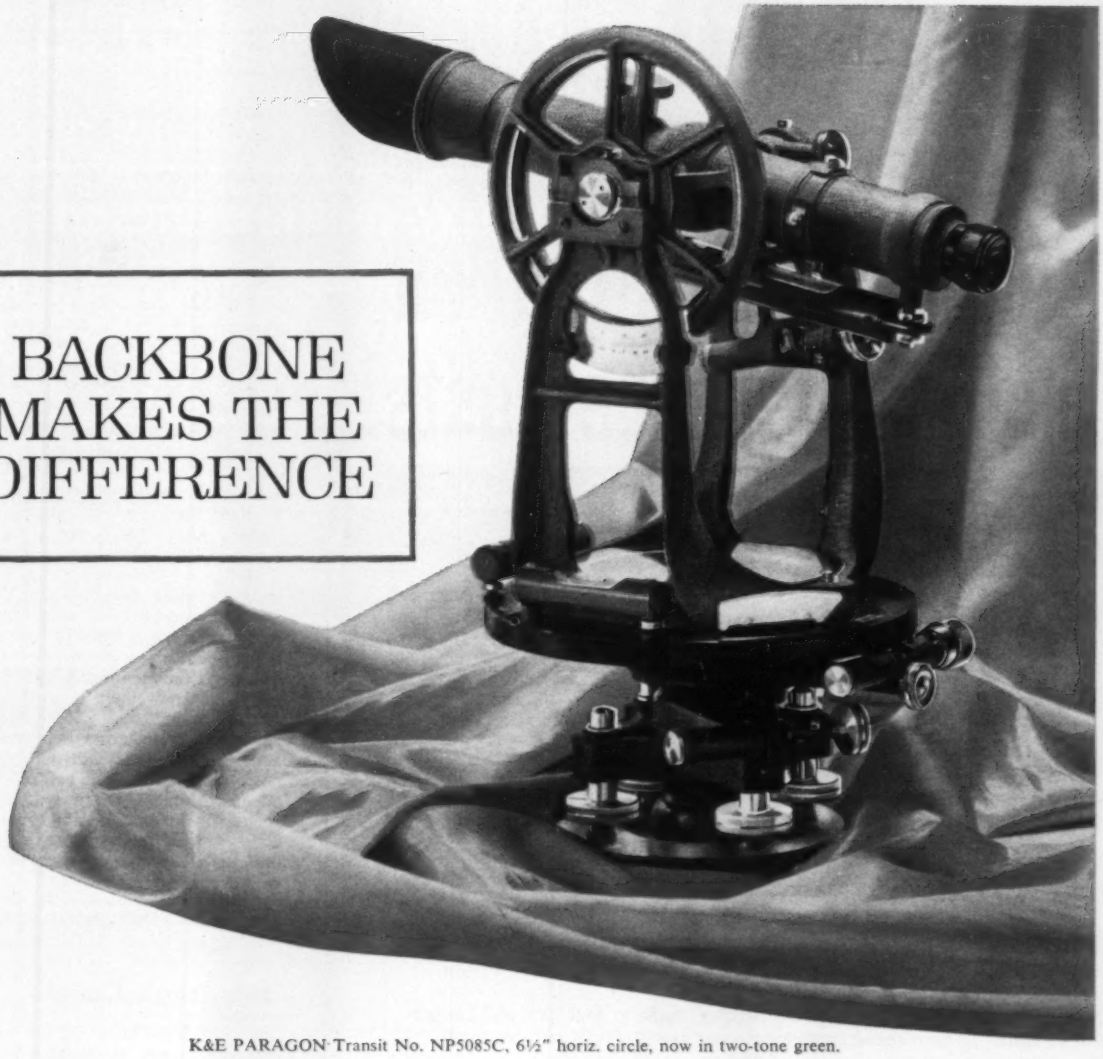

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This is the PARAGON® Transit by K&E. Because of important *inner* features, it is unequalled in performance. Though not easy to see, these features are easy to appreciate and easier with each year of useage. Here are six, all exclusive:

1. Completely Enclosed Achromatic Telescope . . . with an achromatic objective lens *plus* an achromatic *eyepiece*. Assures brighter field and excellent definition resulting in better job performance. Telescope is fully sealed, stays free from dust and moisture.

2. Chrome Plated Draw Tube . . . practically friction-free as it moves back and forth on bronze bearing rings. Virtually eliminates wear so line of sight remains true.

3. Stainless Steel Axle Journals . . . the most wear-resistant bearing surface for a transit axle yet developed. Assures retention of hairline accuracy no matter how many times the telescope is plunged.

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5. Two-Speed Tangent Screw . . . as *standard equipment*. Unique accessory saves time and effort galore in aiming and setting. One knob controls both rough and fine adjustments. Once rough setting has been made by turning one way, simple reversal of knob puts you in low gear where finer (8 to 1 ratio) screw takes over for rapid, precise control of final settings.

6. Chrome Plated Center . . . The very heart of a transit – made of tough forged nonbrittle everdur coated with chrome for extreme hardness . . . the ultimate in transit center design.

These are but six *exclusive* reasons for the PARAGON's continuing leadership . . . there are many others. That's why we'd like you to see the PARAGON *in action;* to see for *yourself* how much more this superb instrument has to offer. Your local K&E representative will be glad to demonstrate it for you – mail coupon below.

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☐ Please have a K&E representative make an appointment to demonstrate the K&E PARAGON® Transit.

☐ Please send me complete information on the K&E PARAGON® Transit.

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Company & Address_____

3089

DIAMOND BLADE SAWING is cutting highway construction and maintenance costs!

Unretouched photograph shows sawed joint that has been in use for one year.

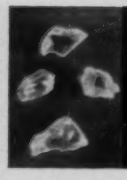
Diamond Blade Sawing cuts precise, uniform highway and runway joints by high-speed, semi-automatic operation. It reduces time and labor costs during joint construction . . . eliminates follow-up finishing work and is conducted without delay or interference to other paving operations.

The high precision quality of the joints produced, unmatched by any other method, aids in decreasing annual maintenance costs by as much as 50%. Reason? Only Diamond Blade Sawing can maintain maximum concrete strength and homogeneity in the joint areas and thus minimize the prime causes of spalling, cracking and chipping.

Modern Diamond Blade Sawing results are a matter of record now, based on performance in projects throughout the country. Facts and figures are readily available. We strongly recommend thorough investigation. ★ ★ ★ ★ ★ ★ ★ ★ ★

For detailed information and field-use reports from state highway officials and contractors, write to Engelhard Hanovia, Inc., for Report #101.

Engelhard Hanovia, Inc. is a leading supplier of diamond abrasive to manufacturers of diamond blade sawing equipment.



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INDUSTRIAL DIAMOND DIVISION

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. . . Reader Comment

the modern treating facilities available to all railroads, the use of ties now extends to 25 years plus, with much heavier traffic and heavier equipment than ever before.

During the recent American Railway Engineers Association meeting in Chicago, D. B. Frampton, Jr., the retiring president of the Railway Tie Association, made these comments: "Our industry has produced a product to meet your specifications, when you wanted it, where you wanted it, in quantities you required, and at a price you have often admitted was less than you would have to pay for any substitute regardless of its merits or demerits. . . . There has never been any shortage of candidates to replace the treated wooden ties. . . . There has never in our national history been a time when someone . . . failed to claim that we are running out of timber. Now, this is not a fact! The raw material for pressure treated wood crossties is everywhere available in almost unlimited quantities . . ."

Mr. Frampton, like all of us in the wood preserving industry, must know a great deal about our source of supply of quality timber for railroad and other uses. We know there is no shortage of quality timber; the U.S. Government Forestry Service knows there is no shortage; the railroads will tell you that now, more than ever before, there is adequate timber to provide the railroads of this nation and others with their treated wood crosstie requirements for as many years as anyone would care to predict.

L. W. Boyer
Republic Creosoting Co.
Indianapolis, Ind.

Bid, Don't Guess

Sir—I would like to go on record as opposing Roger H. Corbetta's suggestion that we should resort to the Italian system of handling bids (ENR Mar. 30, p. 13).

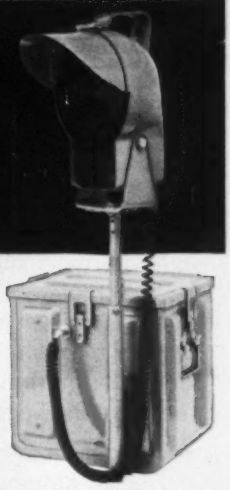
In the first place, awarding contracts to other than the lowest responsible bidder cannot be justified, because most construction work is for the public. Secondly, the Italian system would reduce bidding from a science to a guessing game, which any competent contractor should find undesirable. And finally, the Italian way would stifle initiative and destroy the nobility of a truly great profession and thus further the destruction of our system of free enterprise.

There is nothing wrong with the low-bid system; the fault lies with the bidders. Our system could be improved by stricter prequalification requirements and by a dogged determination by bidders to figure their total cost realistically and then to add a reasonable profit to that cost.

C. P. Ballenger
President
Ballenger Paving Co.
Greenville, S. C.

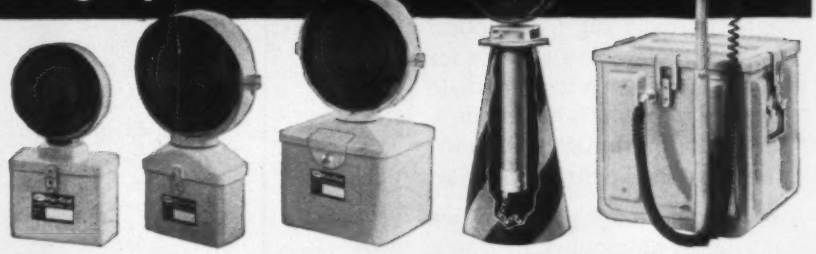
On YOUR jobs . . . play it SAFE . . .

with the DIETZ 3-WAY Hazard Warning System!



Use DIETZ
VISI-FLASH LIGHTS
to alert the oncoming driver:

1

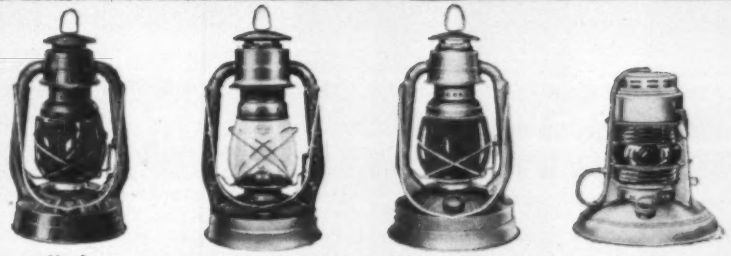


No. 695 No. 665 No. 675 No. 610-FS No. 685/971

Brightest, safest, most trouble-free flashers on the market. Warn: "Danger Ahead."

Use DIETZ
LANTERNS
to locate hazard in relation to the driver's position:

2

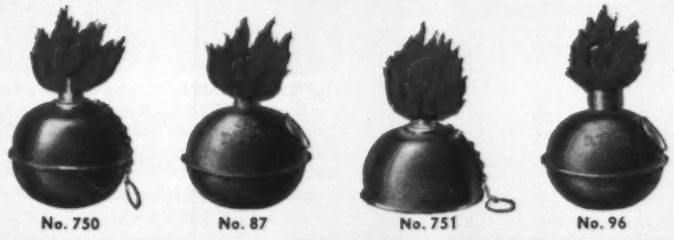


No. 1 No. 8 No. 100 No. 40

Show exact location, shape, extent, and boundaries of hazard area. Burn up to 100 hours.

Use DIETZ
TORCHES
to guide driver around the hazard:

3



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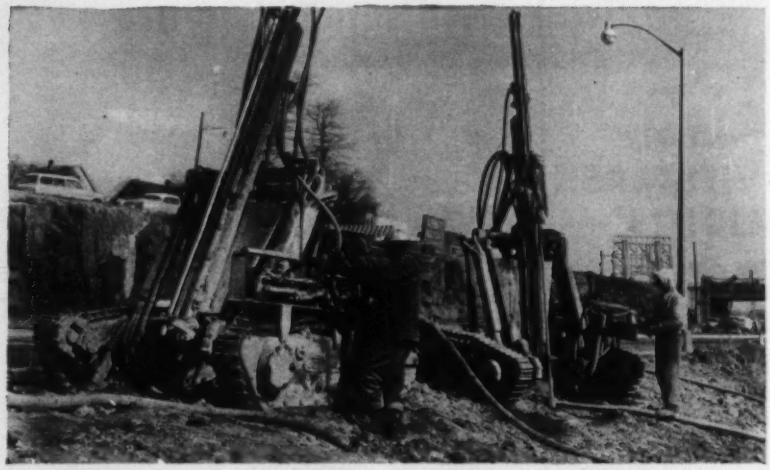
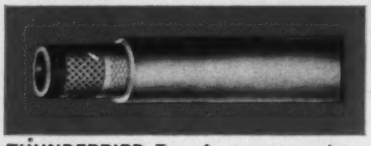
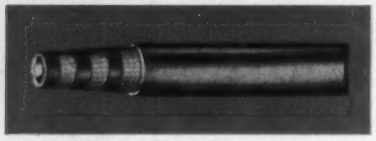


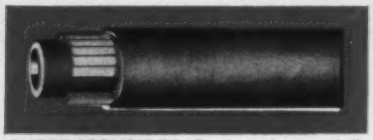
AIR HOSE to run everything from a tamper to a 6" rock drill



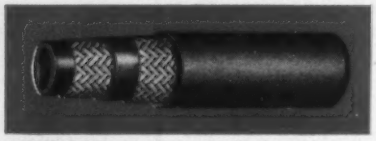
THUNDERBIRD. Tops for economy, durability and safety. For use with heavy air drills and pneumatic tools in the construction field. In 10 sizes from ⅜" to 4". Wire braid construction for high burst strength. Bright yellow cover for easy identification.



THERMINE. Built for rough jobs. Sturdy braids of high-tensile rayon, bonded by tight gripping friction, produces hose that won't twist or kink under pressure. In 8 sizes from ⅜" to 2". Working pressures to 360 p.s.i. Green neoprene cover.



SUPER IRONSIDES. Designed especially for wagon drills and other heavy-duty air drills. All neoprene tube will not swell or flake under hot or oily conditions. In 11 sizes from ½" to 3". Has tough, red neoprene cover. Two plies braided steel wire for high burst resistance.



VERSICON. Most versatile hose made. Particularly for air-operated tools. Tube will not chip. High strength rayon reinforcement for highest pressure requirements. Red neoprene cover. Use with water, oil, grease, solvents or sprays. In 22 sizes from 5/16" to 1½".

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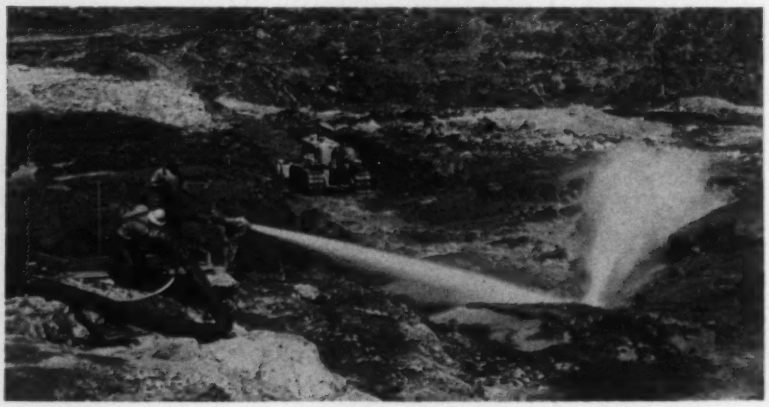
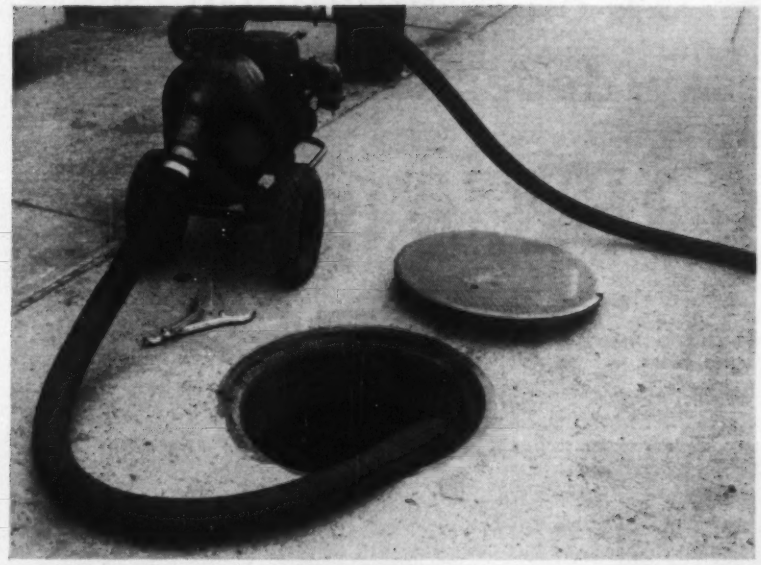
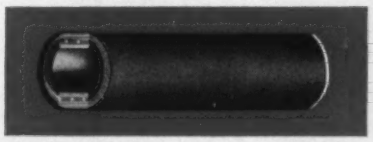
REDSKIN. Highly flexible, uniform inside diameter for full flow of water. Ideal for heavy-duty construction and road building use. Highly resistant to weathering and abrasion. Lengths to 50'. Sizes 1"-2". Maximum water pressures to 175 lbs.

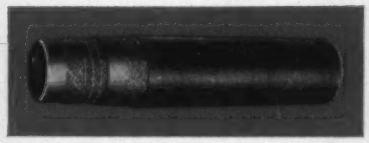




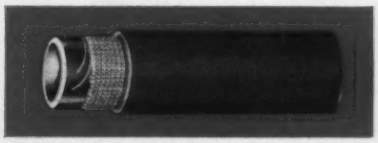
HOSE FOR SUCTION AND DISCHARGE to pump any kind of slurry



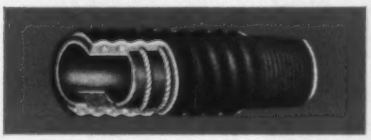
CONTRACTORS Smooth Bore. For suction use in sewer, foundation, trench and road construction. Constructed with plies of heavy duck and steel wire. Compounded to resist water containing alkalies and acids. Lengths to 50′. Sizes to 12″.



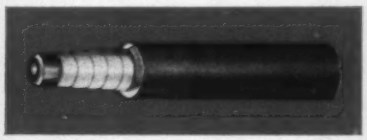
REVOLC. Light flexible suction hose. Easy to handle, yet rugged. Smooth rubber to insure maximum flow. Wire reinforced, horizontally braided. Resists kinking or crushing. Yet easily cut to any length. Lengths to 50′ in sizes from 1¼″ to 4″.



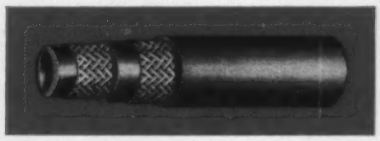
VICTOR CL. General purpose hose, heavy-duty suction or discharge service, up to 100 lbs. pressure. Withstands full vacuum and direct connection to centrifugal and piston pumps. Sizes: 1¼″ to 1½″ with molded cover; 2″ to 4″ with wrapped cover.



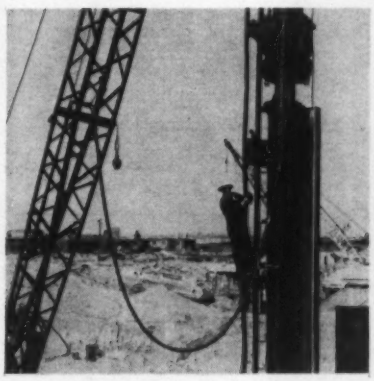
THERMOCORD. Especially adaptable for service where hose may be exposed to traffic or other crushing or pinching conditions. Snaps back to permanent shape when weight is removed. Sizes 1½″-3″.



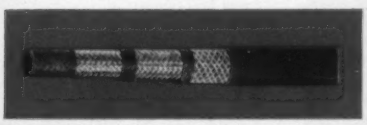
HERCULES. General discharge service at medium pressures in industry and general construction. Particularly suitable on centrifugal and diaphragm pumps. Lengths to 50′, sizes to 12″.



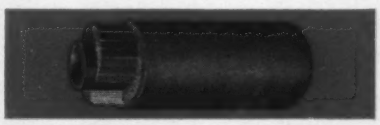
AQUAIR. A dependable, general purpose molded-type hose for medium to heavy duty use. Very flexible and easy to handle. Available in specified lengths or 500′ reels ¼″-1″, 250′ reels 1¼″-1½″.



PILE DRIVER HOSE resists heat and oil



SUPER-IRONSIDES. Wire braided for strength. Operated with maximum working pressures to 200 psi. Designed to withstand effects of heat, pressure, pulsation and introduction of oil from jack hammers. In sizes, ½″ to 3″.



SUPER-EBONITE. Wrapped plies of heavy duck. Operates at working pressures of 150 lbs. Designed to resist effect of heat, pressure, pulsation and introduction of oil from jack hammers. Sizes, ½″-2½″.

THERMOID DIVISION PORTER H. K. PORTER COMPANY, INC.

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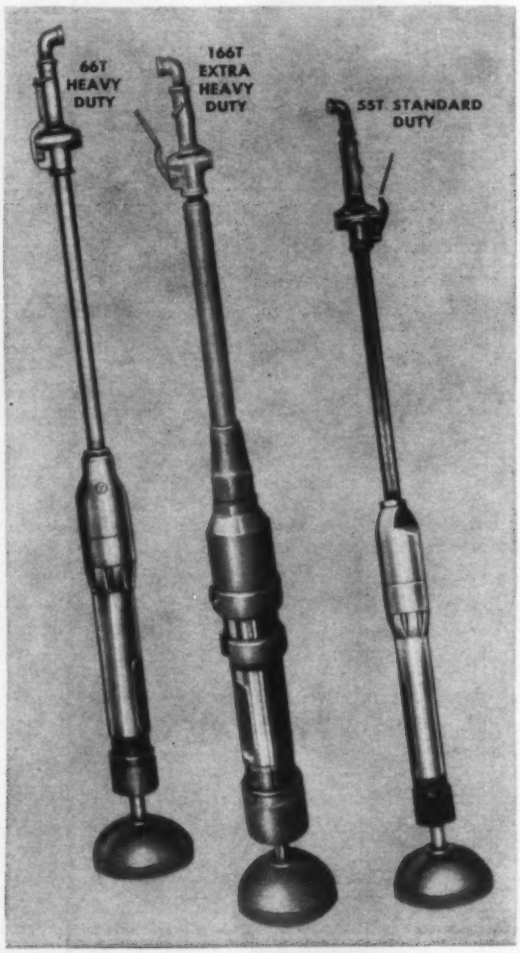
the quick, easy, dependable way

THOR AIR BACKFILL TAMPERS

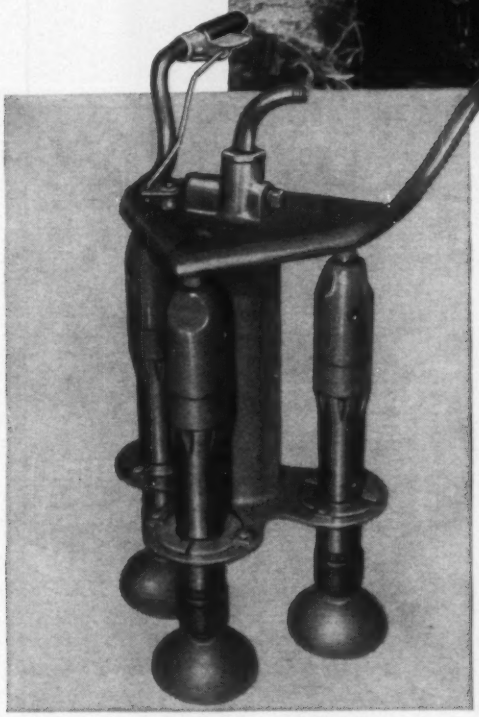
Save money the modern Thor Triplex way. This new tamper will save you 20% in tool investment, 50% in air consumption, 80% in man hours. It all means a job saving of 70%! Compressed air is distributed uniformly, without surging effect, to its three tampers (66T or 166T models).

Thor tampers hit harder, are sealed tight against leakage and are maintenance free. Reason enough to look into what Thor's complete line has to offer. What's more, your Thor "Red Tool" distributor will point out—right on the job if you wish—just how a Thor tamper will eliminate expensive return trips, save money on pavement and foundation repairs, installation of telephone and power poles. He's in the Yellow Pages to put you in the Black on all your tamping jobs. Look him up. Or write us at Thor Power Tool Company, Aurora, Illinois

PUT 25 FOOT-TONS of multiple air-power compaction energy per minute into ditches as narrow as 10 inches, as deep as five feet. Let the Thor Ditch Tamper show you how, quickly and easily.



THEY PAY FOR THEMSELVES by completely compacting earth to original density. All Thor backfill tampers are designed with these valuable features: automatic oiler, 8-position lock-spring for throttle head and barrel, stuffing box cap with 8-position spring lock, automatic plate valve. 10 ft. pipe for throttle and special butt is available for the 66T when required for pole tamping.



STRICTLY FOR ONE-MAN OPERATION! Save the time it would take for three to five men doing the same job using individual tampers. This Thor Triplex backfill tamper has the new built-in "walking" feature, permitting operator to merely guide machine without lifting or pushing.

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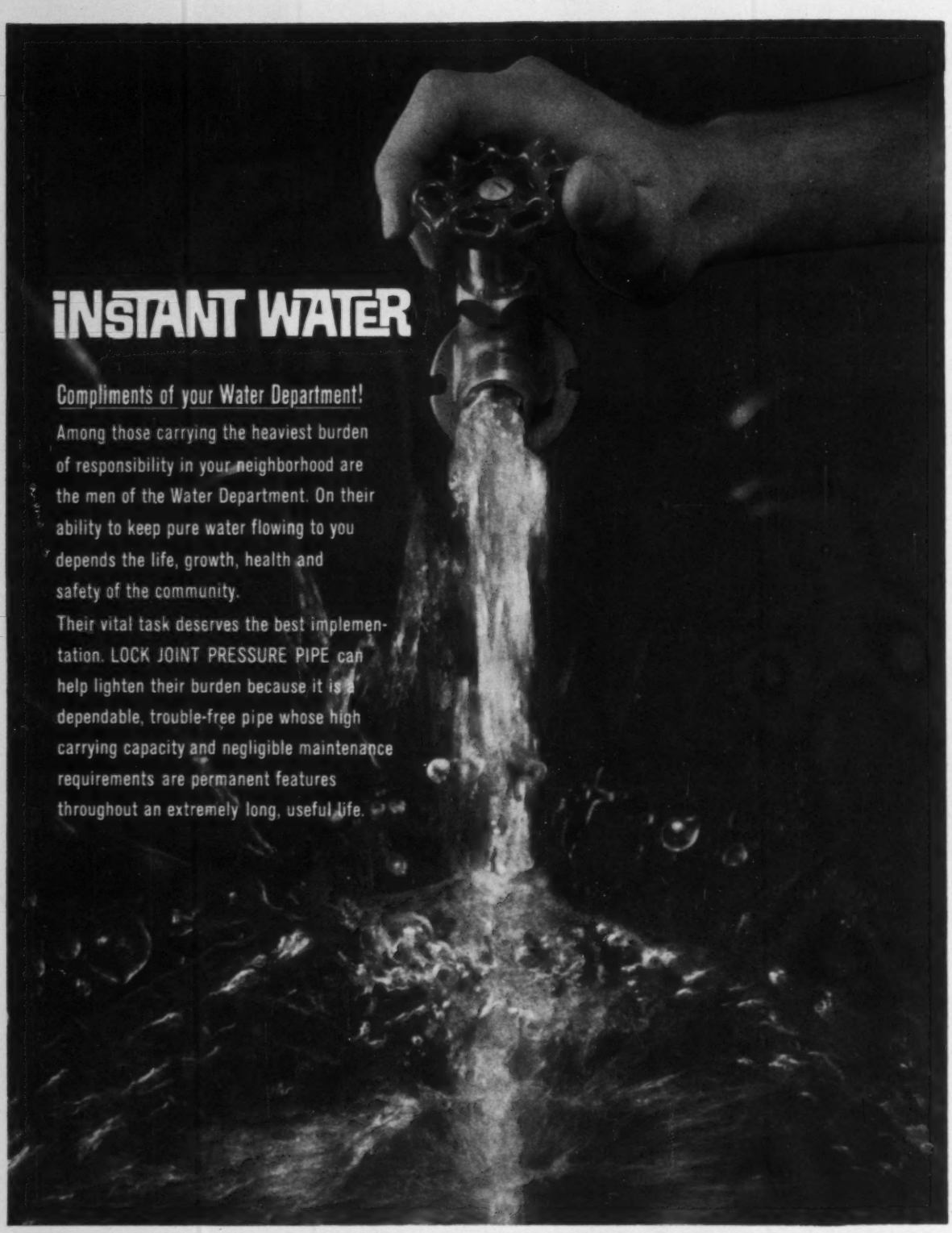
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Compliments of your Water Department!
Among those carrying the heaviest burden of responsibility in your neighborhood are the men of the Water Department. On their ability to keep pure water flowing to you depends the life, growth, health and safety of the community.
Their vital task deserves the best implementation. LOCK JOINT PRESSURE PIPE can help lighten their burden because it is a dependable, trouble-free pipe whose high carrying capacity and negligible maintenance requirements are permanent features throughout an extremely long, useful life.

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ENGINEERING NEWS-RECORD

Vol. 166, No. 16 April 20, 1961

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CONTENTS

Does Federal River Cleanup Work?..... 21
Congress Gets Urban Affairs Bill..... 23
Contractor, Officials Guilty of Conspiracy..... 23
Revised Code of Ethics Put to ASCE..... 24
College Prexy to Head ASCE..... 25
PNYA: 40 Years Old and Still Growing..... 26
Udall Blasts Delaware Pact..... 28
Sewage Plant Needs Tallied..... 28
Municipal Building Features Service Concourse.. 28

FEATURES

Space Age Symbol: Air Academy's Chapel.... 32
Models Are the Key to Complex Job Staging.. 38
Precast Concrete Gives Gothic Look..... 45

NEW PRODUCTS

Loader Handles 15,000 Lb..... 49
Batch Plants Set Up in 2½ Hours..... 49

MEN AND JOBS

Harza Hires Clark for Pakistan..... 59
'Stranger' Gets Highway Post..... 59
Murphy Follows McGara at Yuba..... 59

BUSINESS AND FINANCE

Mass. Pike Extension: What Now?..... 93
Bids In on Glen Canyon Generators..... 93
Machinery Orders Rise 5%..... 95
Wall Industry Maps '61 Expansion..... 95
Anything Can Happen at Mayfield..... 95

LABOR

Construction Drifts Toward a Labor Shortage... 96
JFK Demands Equal Job Rights..... 98

Reader Comment ... 6
Washington Observer 19
Obituaries 63
Unit Prices 65
Materials Prices 67
Construction Reports. 68
Statistics, Indexes .. 91
Editorials 108

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THE CONSTRUCTION WEEK

DO IT YOURSELF—Effective April 30, prime construction contractors on military jobs must do at least 20% of the work with their own forces. On military housing, the minimum is 15%. The revised regulations are only a minimum. Actual percentage will be the "maximum consistent with the nature of the work."

LAYING IT ON THE LINE—Lack of coordinated planning has helped make the Kentucky Department of Highways "one of the of the worst in the nation." So says the department's boss, Henry Ward, Commissioner of Highways. "It's not the fault of department personnel," but the "system of doing things." Mr. Ward, appointed last January, is changing the system.

BETTER LATE THAN NEVER—On the third try, and seven months later than planned. California's Toll Bridge Authority last week sold the revenue bonds for the San Pedro-Terminal Island suspension bridge over Los Angeles Harbor. Contracts were then awarded—the $11,373,999 superstructure to Kaiser Steel Corp.; the $2,634,040 substructure to Guy F. Atkinson Co.

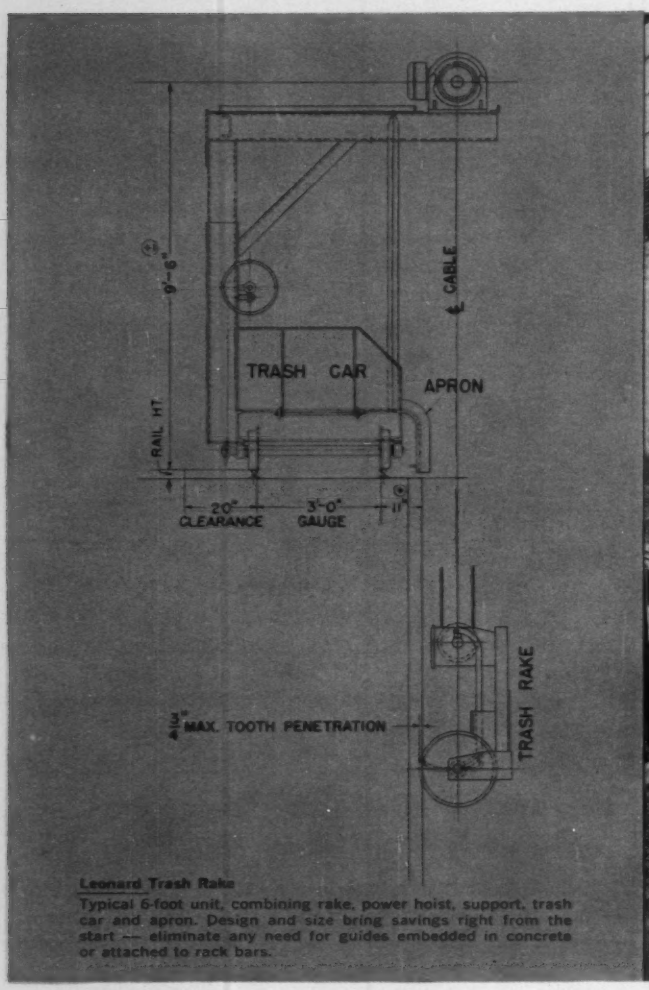
COURT RULES ON HIRING HALLS—The U.S. Supreme Court ruled this week that the National Labor Relations Board has exceeded its authority in its efforts to restrict hiring hall practices. In its first decision involving the Mountain-Pacific doctrine, the court ruled against NLRB in decisions on hiring hall agreements in teamster and carpenter labor contracts.

HOUSING STARTS UP—Private farm and nonfarm housing starts rose 8% above February, the third consecutive monthly increase since December. The seasonally adjusted annual rate of 1,283,000 starts, as estimated by the U.S. Census Bureau, was 27% above December's low rate of 979,000 starts. The March estimate of 102,100 actual starts lifts the first quarter total to 248,000 units, 9% below last year.

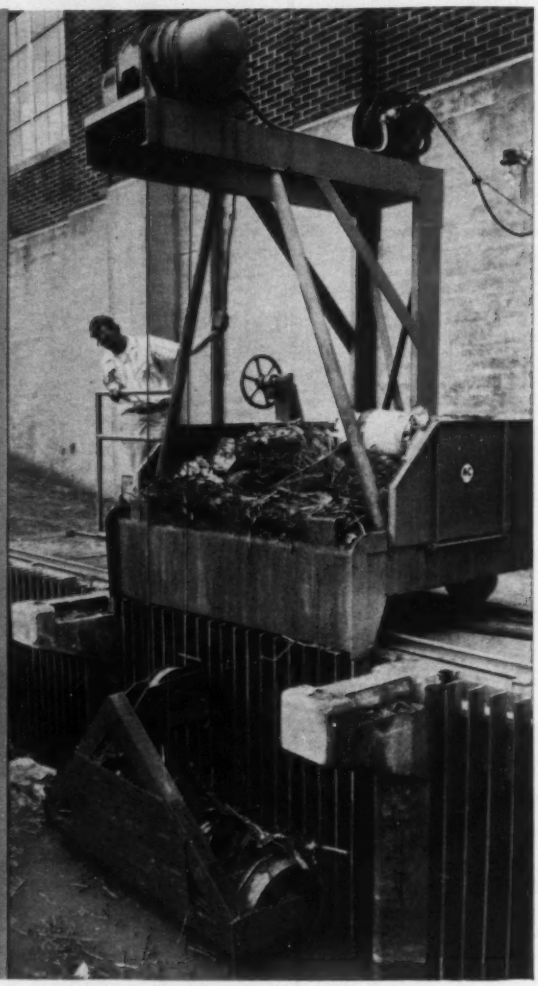
THE SNAKE STILL WRIGGLES—A Corps of Engineers report to Congress has improved chances for the public-power Nez Perce hydro project on the Snake River instead of the private High Mountain Sheep project, which the FPC favored as recently as last fall. The Corps wants to defer final decision until the problem of what to do with the fish is solved. Nez Perce backers, meanwhile, now claim their application for public power has priority—and they'll even build the dam at High Mountain Sheep site.

JOE SENT THEM—Construction workers on a Manhattan apartment project dug themselves an ideal locker room when they uncovered the remains of a large and expensive speakeasy on the site. The employees of Senville Construction Co. change clothes in the old dining room and eat lunch at the bar.

ALLIS-CHALMERS



Leonard Trash Rake
Typical 6-foot unit, combining rake, power hoist, support, trash car and apron. Design and size bring savings right from the start — eliminate any need for guides embedded in concrete or attached to rack bars.



Cleans up costly head losses

. . . rakes-in savings enough to pay for itself!

Here's intake-trash removal so far ahead of hand methods that *"once sold is sold forever!" Leonard* trash rake installations deliver savings both in reduced head loss and labor costs. And they bring a permanent solution to shortages of people to do the job — make trash removal a one-man operation.

Leonard trash rakes roll right down your existing rack bars whether vertical or inclined. Because no channel guides are needed, they freely ride over stubborn obstructions, dig them loose, scoop trash up to the waiting receptacle or car. Self-dumping units also are available—both log-grapple and regular models.

Leonard is an Allis-Chalmers trademark.

With Allis-Chalmers trash rakes even the initial investment is low. Width is held to the logical minimum required for adequate handling of trash . . . standard 6- and 8-foot sizes. Larger units special. Your nearby A-C representative has full details. Or write **Allis-Chalmers,** Hydraulic Division, York, Pa.

A-1307

WASHINGTON OBSERVER

- Unclogging the pipes
- Less bait for industry?
- Housing to the House

- **President Kennedy hopes to release hundreds of millions of dollars worth of oil pipeline construction through reorganization of the Federal Power Commission.** He hit hard at the FPC and its huge backlog of applications in his message to Congress last week on reorganization of the government's regulatory agencies.

  Mr. Kennedy wants to cure the FPC administrative log jam by increasing its membership from five to seven, and exempting from permit procedures pipeline construction applications that involve replacement or expansion of existing facilities to serve existing customers.

  There is a backlog of about 190 construction applications in FPC. These involve nearly 6,000 miles of pipeline at an estimated cost of $850 million. Not all of these would be approved, of course. But a faster clearance procedure would release the hundreds of millions of dollars worth of new construction Mr. Kennedy seeks.

  There is considerable opposition in Congress to the President's proposal. Congress regards the regulatory agencies as "creatures of Congress"; many congressmen disagree with Mr. Kennedy's view that "both the Congress and the President" share responsibility for the agencies.

—

- **A proposal to discourage municipalities from issuing tax-exempt bonds to lure industries from other areas has been offered to Congress.** Rep. Robert P. Griffin (R., Mich.), who introduced the bill, says cities in some 15 states, mostly in the South, are abusing the tax-exemption by building plants with bond money for migrating industries. Congressman Griffin would make these deals less attractive to industry by no longer permitting rent paid on such plants to be a business expense deduction in figuring federal corporation taxes.

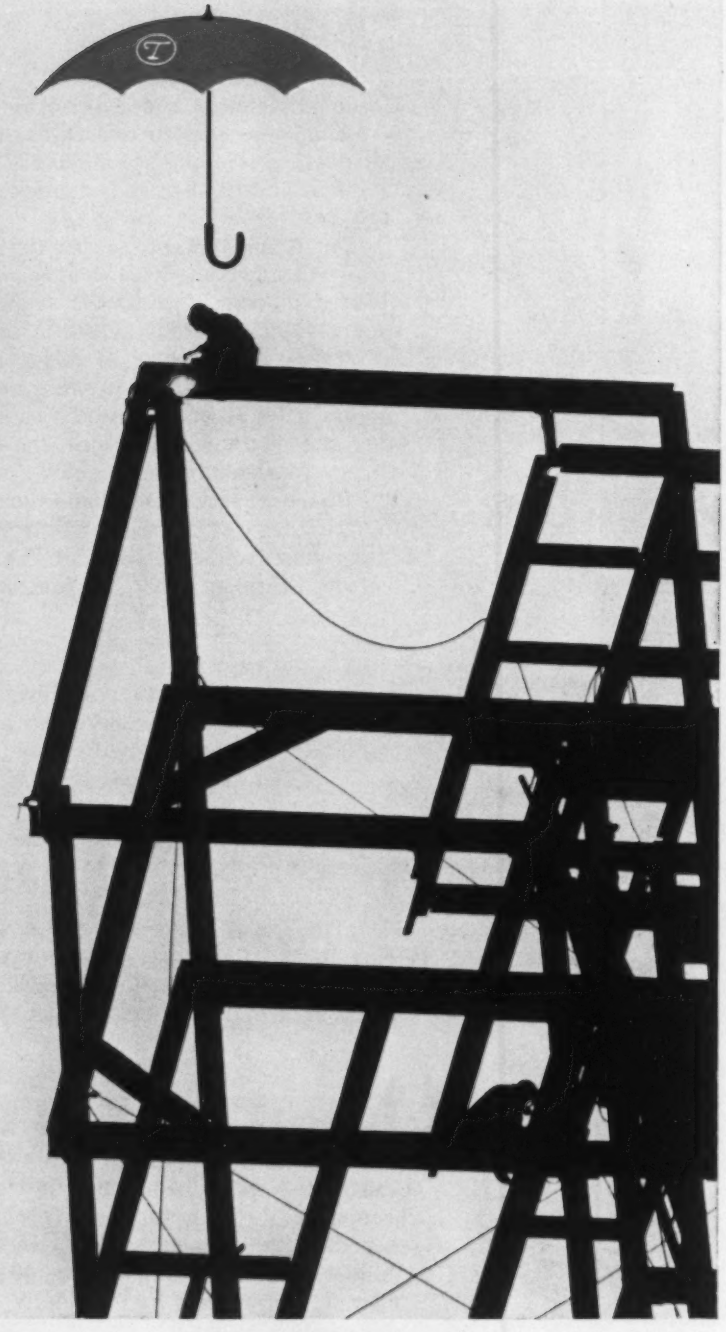
  The House Ways and Means Committee may incorporate the Griffin plan in Mr. Kennedy's over-all tax bill, due late this week. The House approved a similar proposal in 1953, but it was killed by the Senate. Chances of approval this year are considered fairly good.

—

- **Congress is expected to give Mr. Kennedy most of what he seeks to spur the housing industry.** Little in the way of serious controversy developed during two weeks of hearings just concluded before a Senate banking subcommittee. Much the same probably will be true at House hearings, scheduled to start next week. Intact are such Kennedy requests as $2.5-billion urban renewal authority, 40-year mortgages for low-income housing, new aids for housing for the elderly, and $10,000, 25-year rehabilitation loans for existing housing.

—

- **The White House has named Teno Roncalio to be U.S. Chairman of the International Joint Commission** which watches over boundary waters between the U.S. and Canada. Mr. Roncalio, a lawyer and banker and Wyoming Democratic chairman, is said to have impressed Kennedy aides with his administrative ability.



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THE TRAVELERS Insurance Companies HARTFORD 15, CONNECTICUT

Does Federal River Cleanup Work?

By James B. Sullivan

The little old Pony Express city of St. Joseph, Mo., took two U. S. Cabinet departments off the hook last week by going to the polls and authorizing a $6-million bond issue to build sewage treatment works.

For Robert Kennedy's Justice Department, the approval shelves this question: How do you force a town to build something when the voters keep beating down the necessary money proposals? For Abraham Ribicoff's Department of Health, Education & Welfare, the vote uproots a snag threatening the first federal effort to clean up a major river, the Missouri.

Both departments may find the reprieve only temporary. All signs point to expansion of every phase of federal water-pollution control, and enforcement is sure to raise hackles here and there.

So far the Public Health Service, which runs HEW's pollution-control program, has instituted only 13 enforcement actions. But it has plenty of scope for more, and the field will broaden further yet under legislation now before Congress.

Nearly half the actions to date concern the lower 700 miles of the Missouri. This is HEW's pollution-control showpiece, lined by towns and big cities that one after another draw water from the river and then dump their sewage back in. Once cleaned up, it will be "a fine example of the effectiveness of the federal enforcement program," says Secretary Ribicoff.

But federal horizons stretch far beyond the Missouri in all directions. The Public Health Service has identified pollution subject to its control in 124 major streams or segments of streams. That's under present restrictions, which limit federal control to "interstate waters," where pollution "endangers the health or welfare of persons in a state other than that in which the discharge originates."

A broader bill now making its way through Congress with Administration backing extends federal jurisdiction to navigable waters, interstate or not. To be "navigable" in this context does not require the capability of carrying commercial river traffic. Almost any trickle that will float a log qualifies.

This doesn't mean PHS stands poised to blanket the country with enforcement actions after passage of the bill (H.R. 4036, introduced by Rep. John A. Blatnik, D. Minn.). But the agency does have an eye on some streams and stream segments that it can't touch now. Among them: the mouth of the Mississippi; the section of the Columbia River inside Washington; the stretches of the Tennessee within each of the three states of Tennessee, Alabama and Kentucky; the upper Hudson; the intrastate reaches of the Connecticut; and the section of the Missouri within the state of Missouri. There are others (see map).

Federal enforcement is proving effective as far as it has gone. Sewage treatment plants and interceptors built or planned under PHS pressure will total about $500 million in construction costs. And actual contract awards up to now have totaled about $52 million, of which federal construction grants ac-

James Sullivan, ENR Senior Editor in the water resources area, here reviews federal efforts to help states clean up the nation's rivers.

. . . It took three tries for St. Joseph

count for some $6 million. Most communities and industries faced with PHS demands have fallen into line even though with dragging feet and under repeated prodding. Only one—St. Joseph—has openly defied federal authority.

The Public Health Service opened its formal enforcement proceedings against St. Joseph in June, 1957, with a conference of federal, state, municipal and industry officials—the first enforcement step under the 1956 pollution-control law. The problem, as PHS states it:

"The City of St. Joseph, Mo., together with its 18 associated industries, discharges large quantities of municipal and meat-processing wastes to the Missouri River which degrade the water quality so as to interfere with its use as a source of public water supply, industrial water supply, commercial fishing, livestock watering, and recreational purposes in Kansas."

The conferees agreed on a time schedule for the installation of remedial facilities. But the following March the St. Joseph electorate voted down a bond issue to pay the bill.

At this, Missouri asked the HEW Secretary to call a public hearing, the second statutory enforcement step.

The hearing took place in July, 1959. After its conclusion the HEW Secretary issued a notice directing the town and its industries to build treatment works by June 1, 1963. The new timetable produced at the hearing called for another bond election by June 1, 1960. Ten days before the deadline, St. Joseph went to the polls and voted no. Furthermore, the city administration failed to instruct its engineer to proceed with plans and specifications, says PHS.

Two months later, at the request of Kansas and with the consent of Missouri, the HEW Secretary asked the U. S. Attorney General to take the third and final enforcement step the law provides—to file suit.

The Justice Department entered suit in federal court. Then St. Joseph scheduled a third bond election, the one that passed last week.

What would have happened if the city had defeated this proposal and taken its chances in court, no one can say. If the law gives voters the right to accept or reject a proposed obligation, can the law also penalize them for rejecting it? Can you put a town in jail? Can you punish city officials for failure of the citizens to vote one way or another? The election put these thorny questions aside for the present time, but they may well come up again in the future.

Some of the other Missouri River polluters have drawn stern nudges from the PHS, but all are progressing at least fast enough to get by.

Sioux City, Iowa, the first to get HEW's second-step public hearing and directive, has treatment works under contract now. All the 10 industries involved with the city in the hearing will discharge to the municipal system.

The Kansas City area responded to the second step directive it got last June by voting bond issues totaling nearly $100 million. Like most of the other enforcement cases, this one involves not just one municipality but several. The directive was aimed at Kansas City and North Kansas City, Mo., Kansas City, Kan., the Fairfax and Kaw Valley drainage districts of Kansas, and 11 industries. North Kansas City approved a $7.5-million issue in October. In November, Kansas City, Mo., voted $75 million and Kansas City, Kan., $15 million. The only other big item awaiting financing authorization is the separation of storm and sanitary sewers in Kansas City, Kan., which will cost $11 million.

Omaha acted after a 1957 conference and thus avoided a public hearing. The city completed plant improvements last November and awarded interceptor contracts this month. Blair, Neb., has completed a treatment plant. Plattsmouth, Neb., will finish one this spring. Omaha voted a $10.7-million bond issue in November, bringing the total voted for pollution abatement in the area to $21.7 million. Another $5 million will satisfy the present requirements.

In the St. Joseph area, Atchison and Leavenworth, Kan., are both building plants.

Down river at the mouth of the Missouri, St. Louis, the Missouri and Illinois communities on both sides of the Mississippi are working under a schedule arrived at in a conference two years ago. Bond proposals for $16.7 million passed last August, and a two-year engineering study completed within the last month produced a recommendation for a $105-million issue next year.

The Public Health Service's most ambitious enforcement action so far is the one in progress on the Colorado River. It has its own special staff, headquarters and laboratory. It will take five to six years and covers the entire Colorado and all tributaries.

Actually, it isn't an enforcement action in the same sense as those on the Missouri and elsewhere. It is more a comprehensive pollution study.

Four states in the basin formally requested it and the other two concurred. The investigation concerns all kinds of pollutants—radioactive, municipal, industrial, agricultural and others. As the study group accumulates evidence pointing to specific offenders, the PHS will probably start actions similar to those on other streams.

Radioactivity may turn out to be the most serious pollutant in the Colorado Basin because of uranium mining. In fact, it has already figured in one enforcement case in the system. The PHS called a conference in 1958 involving radioactive discharges from a uranium mill at Durango, Colo., into the Animas River, which flows into the San Juan, thence into the Colorado, enroute supplying public water for Farmington and Aztec, N. M. The conferees decided it would take more study to evaluate the problem. The Public Health Service, in cooperation with New Mexico and Colorado, made the study and called another conference in 1959. The mill then installed $30,000 worth of waste-treatment facilities, and the City of Durango built a sewage treatment plant.

It seems highly likely that the present Congress will give the federal government a much bigger hand in pollution matters. The Administration wants it, many if not most state and municipal officials approve, and a Congress little changed from the one that passed Mr. Blatnik's pollution-control bill last year guarantees a good chance for a strong measure.

Congress now has before it about a dozen water pollution-control bills, not counting duplicates and companion bills. Representative Blatnik's is the broadest and has Administration support (with one major reservation).

Besides extending federal authority, the bill would also strengthen it. The present law empowers the Surgeon General (head of the PHS) to start action either on the strength of his own belief that interstate pollution exists or on the request of a governor or state pollution control agency. The new bill would enable him to act also on the request of a municipality, provided, however, that either the governor or the state agency concurs.

The new bill also would authorize the HEW Secretary to issue enforceable orders, which would become final after 60 days unless appealed. This would switch the burden of starting court action from the federal government to the recalcitrant community.

The proposed increase in support for state pollution-control programs would strengthen an already weighty federal influence in state enforcement agencies. Federal grants to state agencies range this year from 11% to 66% of the individual agencies' budgets. The new Blatnik bill would increase the money available for this purpose by two-thirds. Neither the proposed new total ($5-mil-

lion) nor the increase ($2 million) is impressive as federal spending figures go; but the effect can be sizable.

The main effect of the bill money-wise would come from more and bigger construction grants. The total authorization would go up from $500 million to $1.25 billion, and the amount available annually would increase in the same proportion, from $50 million to $125 million. The individual grant ceiling would increase from $250,000 to $600,000, and where plants are built jointly, would apply to each community instead of the entire project. (See p. 28 for a story on the needs.)

A separate grant provision would make funds available for construction grants to communities or other political entities ordered by the federal government to build sewerage works.

The Administration is reserving opinion on one major provision of the Blatnik bill: To pull pollution-control activities out of the Public Health Service and create a new agency at PHS level within the Health, Education & Welfare Department. Secretary Ribicoff would like to see that section studied separately at more length.

Contractor, Officials Guilty of Conspiracy

Two members of Boston's Metropolitan District Commission and a contractor were found guilty of conspiracy and conflict of interest by a Boston Superior Court judge.

Charles J. McCarty, former MDC Commissioner was fined a total of $7,000 on six charges of conflict of interest and one count of conspiracy. Contractor John F. Kennedy was fined $2,000 on two conspiracy counts. Both men received 18-month suspended jail sentences and were placed on probation for two years.

John E. Maloney of Brookline, former MDC chairman, pleaded guilty to 16 counts of conflict of interest while in office, was fined $16,000.

A fourth man, Luigi Analetto, Somerville contractor, entered a guilty plea to the charge of "collusive bidding" on an MDC contract, but sentencing was deferred.

The counts against Mr. McCarty and Mr. Kennedy were in connection with a commission award of $128,000 worth of contracts for highway guardrails. Mr. McCarty testified he transferred the franchise for sale in Massachusetts of guardrails to Mr. Kennedy four months prior to his appointment to the MDC in 1956.

Still awaiting trial in connection with MDC scandals are Louis Recine, a Newton contractor charged with larceny, and State Representative Charles Ianello and three members of his family on charges of conspiracy and larceny.

Congress Gets Urban Affairs Bill

But new Cabinet department may be delayed until next year, and may wind up with very limited authority

The President this week asked Congress to create a new Department of Housing and Urban Affairs. Congress appears certain to approve, although political maneuvering may delay final action until next year.

The proposed legislation is very close to what Mr. Kennedy had promised during the campaign, and what the Democratic platform proposed.

The idea is, in effect, to make a department of the existing Housing and Home Finance Agency, which now consists of several administrations with varying relationships to its top official, Housing Administrator Robert C. Weaver (ENR Mar. 16, p. 31).

The new department would not take over any programs now being conducted by other departments or agencies, although some of them may appear logically to belong in Urban Affairs. The Commerce Department, for example, would retain the highway program, and the Department of Health, Education and Welfare would retain its air and stream pollution programs.

Figures don't show how much federal aid goes directly to cities now. The estimated expenditures in President Eisenhower's 1962 fiscal year budget was for $4.5 billion to both states and local governments; but much more construction is generated, of course, by highway programs, housing insurance programs, and the fact that cities and states are required to match federal funds in many cases.

The new department will be headed by a secretary and three assistant secretaries. One assistant secretary would be in charge of the insurance programs (now centered in the Federal Housing Administration, headed by Neal J. Hardy); one would have urban renewal (now headed by William L. Slayton); and one public housing (now headed by Marie C. Maguire). Community facilities and college housing programs would probably be placed under either Mr. Slayton or Mrs. Maguire.

The functions and authority given by Congress to these existing agencies would be transferred to the secretary, and he would then delegate his powers to the assistant secretaries in charge of the particular program—as is true of other government departments.

The position of the Federal National Mortgage Association would remain much as it is now. The authority and functions of Fannie Mae would be transferred to the department rather than the secretary. The Secretary of Urban Affairs would have the same position in the Fannie Mae structure as the Housing Administrator has now—that is, he would be chairman of the board of the corporation. The operating head of Fannie Mae would still be the president, now J. Stanley Baughman.

Indications are that all heads of the constituent housing agencies of HHFA would become assistant secretaries of the new department.

The big political issue hinges on the top job: Will President Kennedy name Mr. Weaver to be the first Negro Cabinet member?

The political maneuvering was already under way when Mr. Weaver was named Housing Administrator, and will become more heated as the legislation moves through Congress.

Mayor Richardson Dilworth of Philadelphia is a leading candidate—and some say that he, rather than Mr. Weaver, is the front-runner. Both are obviously qualified for the job, and both have strong political support in the big city Democratic machines most directly involved. Another name mentioned: Joseph McMurray, now chairman of the Federal Home Loan Bank Board, who has a long record as a housing expert and consultant for the Democrats in Congress.

A case can be made that not much will be changed by elevating the housing agency, that nothing new will be added but the titles. However, creation of the department will mark a political acceptance of two basic facts of life:

- Most U. S. citizens now live in cities, rather than in rural areas, and the trend to the city will continue.
- The city vote in national politics has become more than ever the key to winning or losing elections.

The creation of the new department will also mark a turning point in goals and purposes: From here on out growing emphasis will be placed on urban affairs in the broadest sense, as against strictly slum clearance for the cities and homebuilding for the suburbs.

The new national policy—along with the promotion of housing for all and elimination of slums—is to encourage and facilitate locations for industrial and commercial facilities; to promote effective mass transportation within urban areas; to provide additional public facilities and facilities for "educational and cultural pursuits"; and, in general, to contribute to "the improvement of conditions under which people live and work."

Revised and Expanded Code of

- **The revisions are minor changes in language. More important is a document that interprets and amplifies the code's ten articles.**
- **Board of Direction takes a stand on corporate practice of engineering: It's OK provided registered engineers are in complete control.**
- **The board also lays down a professional standard for engineers working abroad: 'When in Rome, do as the Romans do,' if necessary.**

The code of ethics of the civil engineering profession—often in contention, sometimes breached—has been revised for submission to a vote of the members of the American Society of Civil Engineers.

This was but one action of professional concern the ASCE took last week at its special-summer meeting in Phoenix, Ariz., a meeting that also featured spirited discussion of problems of seawater conversion and rapid transit.

Price bidding for engineering services, corporate practice of engineering, the ethics of seeking work abroad—these were among the professional matters discussed.

• **Code of ethics**—Of even greater significance than the revision in the code of ethics is the fact that the code will be accompanied for the first time by an interpretative document, to be known as a "Guide to Professional Conduct Under the Code of Ethics." In this guide, each of the 10 articles of the code is amplified by rules of conduct applicable to specific situations. The rules are a result of committee work and discussions begun several years ago in an attempt to make the code more explicit and more definitive of approved and prohibited practices.

Revisions of the code itself are largely editorial in nature, intended to clear up ambiguities and simplify the langauge. The most outstanding change occurs in the article on competitive bidding for a job on the basis of price. As revised, this article states: "It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any member of the American Society of Civil Engineers to invite or submit priced proposals under conditions that constitute price competition for professional services."

This simplified version of the article in the former code is now supplemented by seven rules of conduct given in the new guide:

1. He may, where price competition is clearly not involved, discuss with the prospective client the scope and cost of engineering services.

2. He may reply to a request for a proposal, wherein price competition may be involved, by advocating the procedure for selecting an engineer suggested in the current ASCE manual on private practice of civil engineering.

3. When requested, prior to negotiations for services and wherein price competition may or may not be involved, he may advise a prospective client in regard to:

- Qualifications and availability.
- Scope and probable cost of engineering work by reference to published schedules of fees such as shown in the current ASCE manual on private practice of civil engineering, or by reference to comparable work of similar scope.

4. He shall not submit a priced proposal, written or verbal, which includes a stated fee or estimated range of fees in any form in response to:

- A public advertisement for bids.
- Any invitation if there is reason to believe that multiple invitations have been issued and that price will be the primary consideration.

5. He shall not be a party to requesting two or more priced proposals for comparative purposes where price is to be the prime consideration.

6. He shall not solicit an engineering engagement by reducing charges after being informed of proposals of others.

7. He shall not submit a proposal for an engineering engagement unless he is invited to do so.

• **Corporate practice policy approved**—In another notable action, the board of direction endorsed as Society policy a revision of Section 22 (d) of the Model Law of the National Council of State Boards of Engineering Examiners (NCSBEE) relating to engineering corporations. The Model Law approves such corporations as long as personnel acting in their behalf as engineers are legally registered professional engineers. Believing such a provision is not restrictive enough, ASCE has proposed:

- The majority of the shares of the corporation's voting stock shall be owned by individual registered professional engineers.
- A majority of the directors shall be registered professional engineers.
- A majority of the officers, including the president, shall be registered professional engineers.
- The individual engineers in responsible charge of the practice of engineering shall be registered in the state having jurisdiction over performance of such practice.
- All final plans, designs, drawings, specifications and reports involving engineering judgment and discretion, when issued, shall bear the seal and signatures of the registered professional engineers who are responsible for them.
- All living persons whose names appear in the name of a partnership, joint stock company or corporation shall be registered professional engineers in a state, territory or the District of Columbia.

An additional part of the revision also states that a corporation is not prevented "from using its own engineering services to perform work which is incidental to the manufacture or sale of its products, providing such services do not include the furnishing of an over-all design of a project."

All these revisions respecting corporate practice are in accord with similar revisions proposed by the American Institute of Consulting Engineers, and Consulting Engineers Council. The plan is to propose them to the NCSBEE for inclusion in the Model Law. In the meantime they stand as ASCE policy on the question of formation of engineering corporations.

• **Working abroad**—Consulting engineers seeking contracts in foreign countries have frequently had trouble squaring ethical principles applicable in the U.S. with accepted business practices abroad. In a realistic move to provide guidance in such matters, the ASCE board approved a statement of definite policy. When an engineer operates in a foreign country he "shall order his conduct according to the professional standards and customs of that country, adhering as closely as practicable to the principles of the ASCE code of ethics."

The Society's board also took actions

Ethics Put to ASCE Members

on several congressional legislative proposals. It endorsed HR 5563, providing for a professional classification system in the federal service, and HR 924, providing for accelerated depreciation of industrial water and air treatment works. It stated its opposition to bills that would institute a crash program in saline water treatment on the grounds that development of other sources of water is more realistically attuned to the nation's needs. At the same time it supported continued pilot plant research on saline water conversion.

The Society's City Planning Division urged the board to express support for legislation looking toward establishment of a federal Department of Urban Affairs, but no action was taken. On a somewhat related matter, however, the board asked the Society's committee on division activities to appoint a committee to study and prepare recommendations concerning the role of civil engineers in city and regional planning work.

• **Seawater conversion**—One of the significant technical panels disclosed a very substantial difference of opinion as to the future economic possibilities of seawater conversion.

Lewis G. Von Lossberg, of Sheppard T. Powell and Associates, Baltimore, Md., reviewed the Interior Department's program, which has been under way since 1952 with $20 million in appropriations. He said, ". . . We look forward with confidence that . . . some radical new processes may be forthcoming which will effect marked reduction in cost."

His optimism was shared by a pair of Chicago Bridge & Iron Co. engineers, James T. Dunn and A. N. Chirico, who described the Office of Saline Water's Freeport, Tex., plant. With construction just completed, this long-tube vertical, 12-stage distillation plant will be the first of the five full-scale OSW demonstration plants to go into operation. Built at a cost of about $1¼ million, the Freeport plant is expected to produce potable water for about one dollar per thousand gallons. This is the same cost predicted for the 36-stage OSW distillation plant at San Diego, which was described by Arthur R. Croit of Westinghouse.

The CBI engineers confidently predicted that a plant similar to the one at Freeport could at a 20-mgd rate produce potable water for 40 cents a thousand gallons, which is comparable to the delivered price of domestic water in many parts of the country.

Their optimism was not shared, however, by Ralph W. Spencer, manager, engineering department, for Southern California Edison Co., which has been operating a conversion plant at its Mandalay steam station for more than a year. This plant is a long-tube, 26-stage flash evaporator capable of producing 100,000 gal per day. Cost has been $1.92 per 1,000 gal including fixed charges. He concluded with a personal opinion "that fresh water from the sea by any presently developed distillation method will never be economical compared to long distance importation of natural fresh water supplies."

• **Urban transportation**—Rapid transit as a solution to urban transportation problems was both supported and questioned. Ellis Armstrong, recent U. S. Commissioner of Public Roads and now president of the Better Highways Information Foundation, questioned the need for rapid transit in most cases. He claimed that one lane of freeway could have the carrying capacity of one lane of rail rapid transit. Mr. Armstrong admitted that rail rapid transit has its place, but he concluded that there will not be a radical swing back toward building new rail rapid transit facilities because in most instances this is not the solution.

Wilbur Smith, consulting traffic engineer of New Haven, Conn., countered that "transit is an integral part of an urban area's total transportation system." He predicted that rapid transit systems will be limited in most cases to urban complexes of two million or more people.

Rapid transit was also supported by Irvan F. Mendenhall, president of Daniel, Mann, Johnson & Mendenhall, who described a 75-mile system his firm planned for Los Angeles. "Rapid transit," Mr. Mendenhall claimed, "is essential if cities are to grow." He estimated that his 75-mile Los Angeles transit system would cost $530 million.

On the national scene, Charles E. De Leuw, president, De Leuw, Cather & Co., Chicago, said that the 1972 target date for completion of the Interstate Highway System is considered unrealistic by advocates of pay-as-you-go financing. The Kennedy Administration has a difficult decision to make, Mr. De Leuw said. It must decide whether to postpone completion of the program beyond 1972, resort to borrowing from the Treasury or continue special taxes on fuel, tires and other automotive items.

Mr. De Leuw cited a resurgence in construction of toll facilities. And he proposed a federal guarantee to toll-roads that are estimated to earn 110% of net revenues necessary to amortize the investment. He pointed out that investors now require revenue estimates of 130 to 150%. He predicted that such federal backing would assure early construction of substantial mileages of desperately needed highways.

College Prexy to Head ASCE

The Society's nominating committee at the Phoenix convention made G. (for George) Brooks Earnest the official nominee for ASCE's presidency. Mr. Earnest, who is president of Fenn College in Cleveland, will be voted on at ASCE's October convention in New York City.

He will succeed another engineer-educator, Glenn Holcomb, head of civil engineering at Oregon State College, who has presided over ASCE since last October.

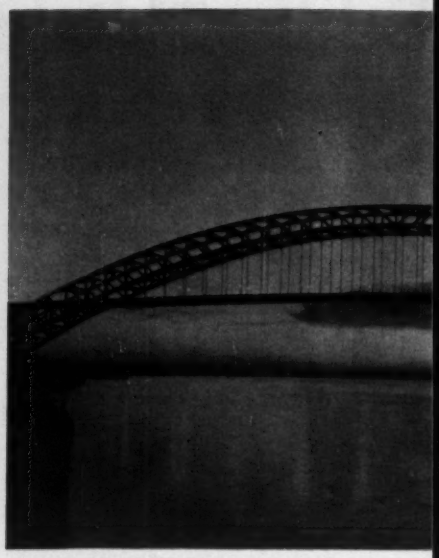
Brooks Earnest was at Case Institute of Technology before he became dean of engineering, then president at Fenn College. He was a vice president of ASCE in 1953 and '54.

In a separate action, ASCE's board named four to honorary membership, the Society's highest honor: Prof. Abel Wolman of Johns Hopkins; George S. Richardson, Pittsburgh consulting engineer; Samuel B. Morris, Los Angeles consultant; and Thorndike Saville, now a consultant in Gainesville, Fla.

G. Brooks Earnest

The Society's professional recognition award, instituted last year, went to Finley B. Laverty, chief hydraulic engineer, Los Angeles County Flood Control District.

OUTERBRIDGE CROSSING and similarly designed Goethals Bridge were opened in 1928 as first PNYA projects. It is named for Eugenius Outerbridge, first PNYA chairman.

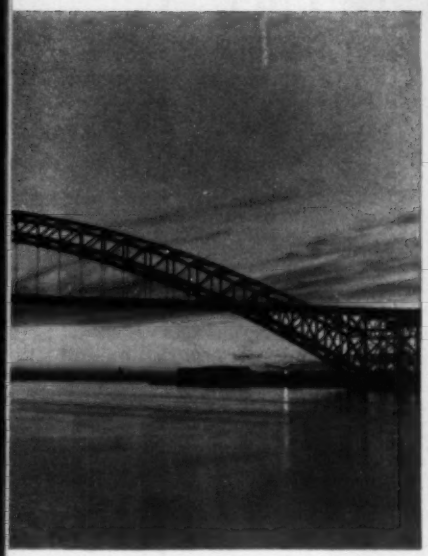


BAYONNE BRIDGE, opened to traffic in 1931, is longest steel arch span (1,652 ft).

PNYA: 40 Years Old and Still

BROOKLYN PIERS (light roofs) are part of $90-million development program there.

LINCOLN TUNNEL links Manhattan and Weehawken, N. J., (above) with three 1¼-mile tubes under Hudson River. New York end connects with PNYA Bus Terminal.



It cost $13 million to construct, handles some 2.4 million motor vehicles yearly.

Growing

The Port of New York Authority, celebrating its 40th anniversary this month, has built its own monuments.

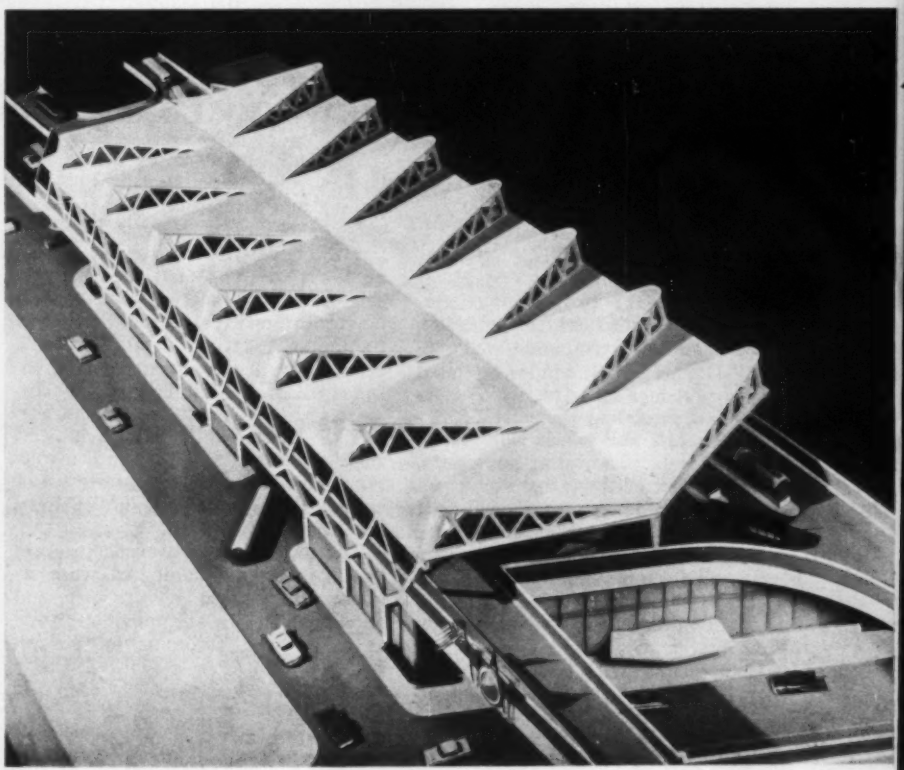
Since its creation on Apr. 30, 1921, the authority has built or enlarged four bridges, two tunnels, four airports, two heliports, six marine terminals and five inland terminals for buses, trucks and rail freight. These 23 projects represent an investment of almost $1 billion.

New York and New Jersey jointly established PNYA as a nonprofit, tax-exempt, quasi-governmental agency to end a freight-rate war between railroads in the port of New York. The two states charged the authority with developing and operating transportation and terminal facilities in an area within a 25-mile radius of the Statue of Liberty. The first bi-state authority, PNYA has been a model for 35 subsequent multi-state agencies.

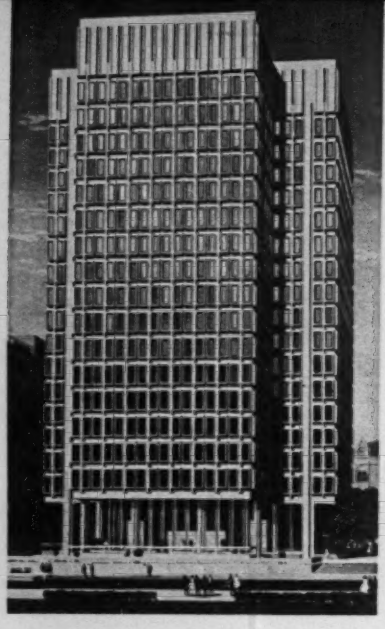
The authority has since become one of the biggest business enterprises in the New York area, big enough to draw large quantities of both criticism and praise. It has 4,400 employees (1,100 of them are policemen) and an annual operating budget amounting to some $110 million.

PNYA finances its capital expenditures through surpluses and sale of tax-exempt revenue bonds. Tolls collected at bridges and tunnels and leases on piers and airport space support it. The authority has a monopoly on motor vehicle crossings between New York City and New Jersey. As a result, its toll revenue runs to more than $100 million a year.

NEW YORK INTERNATIONAL AIRPORT covers 4,900 acres, serves 40 airlines and 7 million passengers per year. Terminal City (above) cost $150 million to construct.



BUS STATION over Manhattan approach to George Washington Bridge (see p. 38) will have three levels, serve 2,000 buses, 50,000 passengers daily. Pier Luigi Nervi is designer.



Municipal Office Building Features Service Concourse

Philadelphia's $16.3-million Municipal Services Building will have a 21-story tower shaped like a Greek cross in plan and faced in off-white precast concrete. But an underground concourse, occupying the entire three-acre building site, will outrank the building's distinctive superstructure as its most outstanding feature.

Adjoining City Hall and Penn Center, the concourse will house those city offices providing direct service to the public—licenses and permits, information, complaints. It will connect directly with subways, an underground parking garage, the nearby suburban station, Penn Center and City Hall. A series of light wells and a block-long open court will admit natural light.

Above the glass-walled lobby at ground level, reinforced concrete floors will cantilever 12 ft beyond exterior columns. Windows set in projecting frames present an embossed wall pattern. Double-glazed windows, tinted bronze to reduce sun glare, will enclose 5-in.-thick insulating spaces.

The precast wall panels will enclose perimeter induction heating units, automatically controlled by thermostats on exterior walls. These controls will react to temperature changes as the sun moves around the building. Peripheral areas will be independently heated or cooled by the combination heating and air-conditioning system to maintain uniform interior temperature.

Construction start is scheduled for May 1962, with project completion in mid-1964. Architect is Vincent Kling; structural engineer, McCormick Taylor & Associates; mechanical and electrical engineer, Charles F. Leopold, Inc. All are from Philadelphia.

Udall Blasts Delaware Pact

The proposed Delaware River Basin Compact, still reeling from pot shots fired by two big steel companies, took a broadside last week from the Kennedy Administration.

Interior Secretary Stewart L. Udall told a conference of governors and other backers of the plan that the White House objects because the compact would put the federal government in the back seat.

Mr. Udall said that federal jurisdiction must remain pre-eminent in river development. He also questioned the constitutionality of the agency, which would be comprised of representatives of four states and the federal government. He called it a "third form of government, responsible to neither of its parents."

The proposed commission would be given broad powers to issue bonds, build reservoirs, dams and other water facilities, develop hydroelectric power, control withdrawals of water from the river, and pass upon any construction or project that might have a substantial effect on the water resources of the Delaware Basin (ENR Feb. 9, p. 24).

The compact must be ratified by the states of Delaware, New Jersey, New York, and Pennsylvania, as well as Congress. Almost complete bi-partisan agreement on the compact has been reached by the congressional delegations of the four states, and hearings were held earlier this year by the House Judiciary Committee. A similar measure introduced by senators of the four states is awaiting hearings by the Senate Public Works Committee.

Meanwhile, New York State has ratified the compact and it sailed through the New Jersey Assembly by a vote of 52 to O. But at Senate hearings in Harrisburg, Pennsylvania's two big steel producers, U. S. Steel Corp. and Bethlehem Steel Co., raised objections.

The steel makers complained that the proposed commission would be too powerful and threaten their "existing free legal uses of water." Some proponents of the pact discounted this as a cover for "Big Steel's" real worries over stream pollution.

Despite this opposition, reminiscent of 1953 when Pennsylvania failed to ratify the so-called Incodel Delaware plan, Gov. David L. Lawrence predicted ratification by that state.

Only a month ago Mr. Udall implied approval of the pact, and in his statement last week he professed interest in "seeing the development of the Delaware River Resources carried forward." But the Secretary said he was "opposed to the federal government being a partner in the compact on its present basis." He suggested that the states should proceed on their own with the consent of the federal government.

Sewage Plant Needs Tallied

Sewage plant construction in the U. S. should be increased by 40%, according to a nationwide survey released by Surgeon General Luther L. Terry.

The state-by-state survey, compiled by the Conference of State Sanitary Engineers in conjunction with the Public Health Service, disclosed that 5,200 communities serving 42 million people need either new treatment plants, enlarged plants or additions to their existing facilities.

PHS estimates that these projects alone amount to $2 billion in construction and would cover only treatment of municipal wastes now being discharged into rivers and streams.

The combined outlay needed to meet this backlog plus additional work resulting from plant obsolescence and population growth will run around $600 million a year, according to the survey.

Of 4,136 communities that need new plants, 1,421 are presently discharging raw wastes from a population of 15 million.

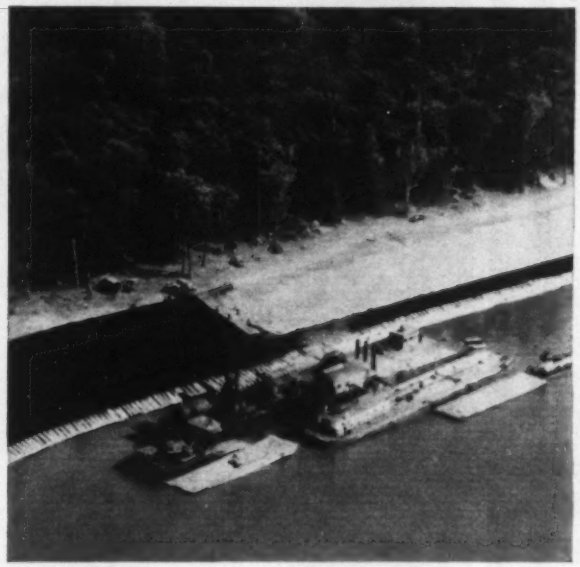
Although many more new plants are needed in towns of under 10,000 population, the cost of these plants is about equal to those needed in larger cities.

The survey also reveals that nearly 80% of the towns that need plant enlargements and additions are in the under-10,000 category. But the cost of improvements needed in big city plants is triple that of the small town projects.

The 12-page report lists the number of towns that need either new plants or plant enlargement and additions both by population size and state by state. Design populations and costs are included, but these figures also are presented collectively and not for individual municipalities. The survey covered 48 states, the District of Columbia, Puerto Rico, and the Virgin Islands.

ENR has predicted a 17% rise in over-all sewerage construction (including sewer systems) for 1961 and a 7% increase for 1962 (ENR Jan. 26, p. 44). Contracts awarded during the first 14 weeks of this year total $184 million, 28% above the same period in 1960. Also, ENR's backlog of sewerage construction stood at $4.2 billion at the end of March—an 8% jump over last year.

ASPHALT-GROUTED stone jetty has successfully withstood hurricanes and high tides for 25 years.



ASPHALT BLANKET protects this Mississippi River levee from the ravages of "Old Man River."

ASPHALT-FACED, rock-filled dams provide low-cost construction, resist seepage and erosion.

TAME TIDE OR TORRENT...*with economical asphalt from Esso!*

When Nebuchadnezzar built the Hanging Gardens of Babylon, he used asphalt to line the canals which brought water to that ancient wonder of the world. Today asphalt is still one of the most durable and economical materials known for water control.

Asphalt structures such as groins, jetties, and sea walls help protect our nation's shoreline from erosion by wind and wave. Asphalt-lined reservoirs prevent seepage loss of precious water. Asphalt paving protects dams, storm channels, and roadway drainage ditches.

Esso refines asphalt in a wide range of grades for water-control and a variety of other purposes; delivers it from nine conveniently located supply points. For more information about this versatile material, or for expert technical assistance, write us at 15 West 51st Street, New York 19, New York.

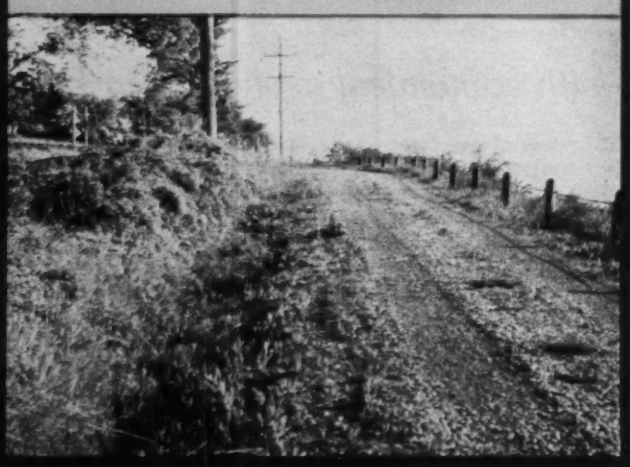
ESSO STANDARD, DIVISION OF
HUMBLE OIL & REFINING COMPANY

gb from Gustin-Bacon, a pioneer in fiber glass, comes

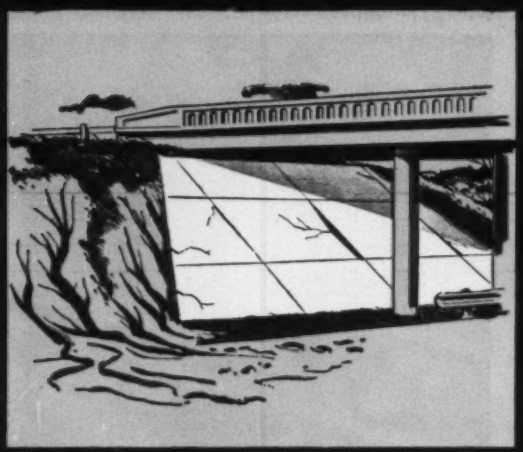
ULTRACHECK™, a new cost-cutting concept for soil erosion control

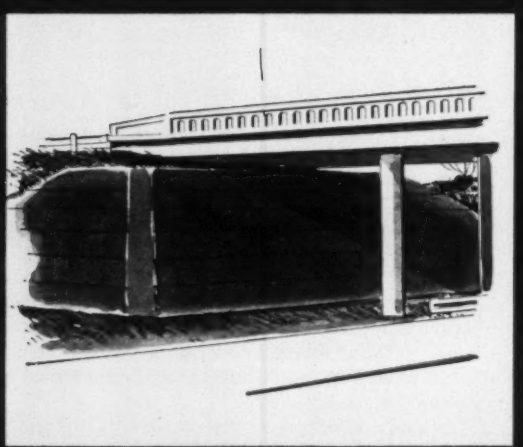
ULTRACHECK STOPS EROSION ON COUNTY ROAD

These "before" and "after" photos give dramatic proof of ULTRACHECK's ability to control erosion—even after all other practical methods failed and expensive annual re-grading had been necessary. Two and one half years later —completely stabilized with G-B ULTRACHECK and natural vegetation—this ditch now requires no maintenance whatsoever.



LOW-COST TREATMENT OF BRIDGE BERMS

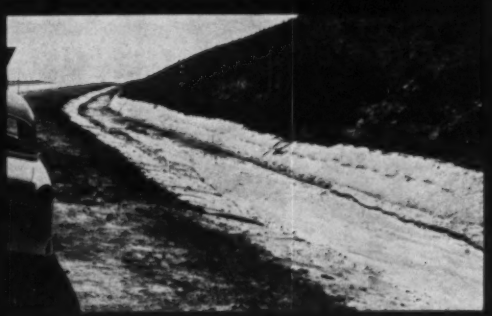




Besides reducing material and labor costs as much as 55%, G-B ULTRACHECK keeps bridge berms erosion-free with little or no maintenance required. Permanent as glass itself, G-B ULTRACHECK will not rot, corrode or deteriorate.

With G-B Ultracheck glass fiber blankets there is a more permanent, less expensive way to prevent erosion along highways, on bridge berms, on large construction projects, or wherever earth has been moved, replaced or stripped of vegetation. G-B Ultracheck is made exclusively of long, high-strength glass fibers, permanently bonded together in 1″ thick blankets. Continuous 100-foot blankets, in widths up to 6′, simply roll over the erosion susceptible area. They are then toed in, pinned down and forgotten! For added strength, asphalt may be applied to the blanket's surface. Because G-B Ultracheck offers no resistance to vegetation growth, grasses and other vegetation begin immediately to grow through the glass fibers. Soon the entire area is completely lined with vegetation, assuring permanent, maintenance-free protection against erosion. G-B Ultracheck is economical to install, too. Experience to date indicates it can be applied for between $1.00 and $2.00 per sq. yd. (a few cents higher if treated with asphalt)—a savings of 55% as compared to concrete. G-B Ultracheck has been proved by years of extensive testing under actual conditions with the cooperation of state highway officials. Several of these actual case histories are shown below.

TREATMENT OF SUPER-HIGHWAY DRAINAGE SYSTEMS IS FASTER, MORE ECONOMICAL



Manufactured in 100-ft. rolls, in widths up to 6 feet, G-B ULTRACHECK is ideal for the side lining of drainage ditches where erosion endangers the shoulders of a highway.

ULTRACHECK-LINED FLOOD CONTROL DIKES REMAIN EROSION-FREE

Even when subjected to tremendous volumes of water, G-B ULTRACHECK glass fiber blankets do not wash out. Witness this flood control dike where G-B ULTRACHECK effectively channels water at a sharp 90° angle.

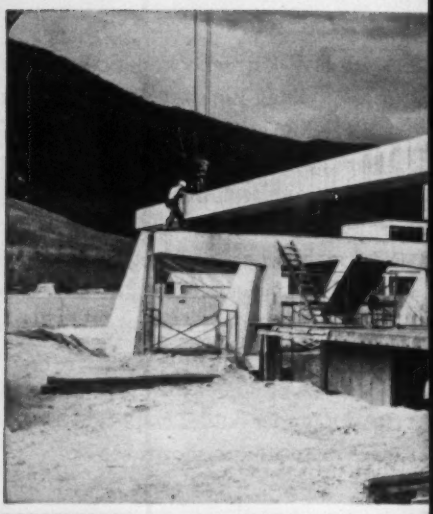
OTHER APPLICATIONS: Lining of sewer lagoons; protection of earthen dams against wave action; temporary erosion protection at construction sites; flumes; drainage ditches; irrigation canal lining, etc.

Gustin-Bacon engineers are eager to consult with builders, contractors and engineers who have particular erosion problems. ULTRACHECK may provide a solution. For your free copy of a fully-illustrated brochure giving additional case histories and application specifications, write today.

GUSTIN-BACON Mfg. Co. gb

226 W. 10th St., Kansas City, Mo.

FINAL SPIRE SECTION—a tubular steel frame complete with Colorado pine—swings into place. Frames overshadow end wall steel and dwarf erection scaffolds.

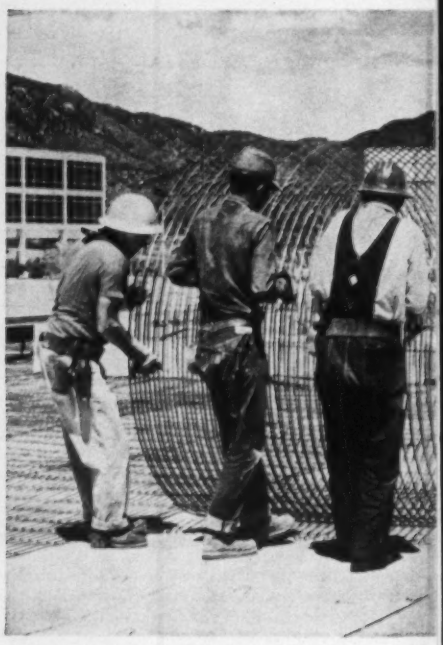


PRESTRESSED concrete girders for chapel floor roll to position on dollies.

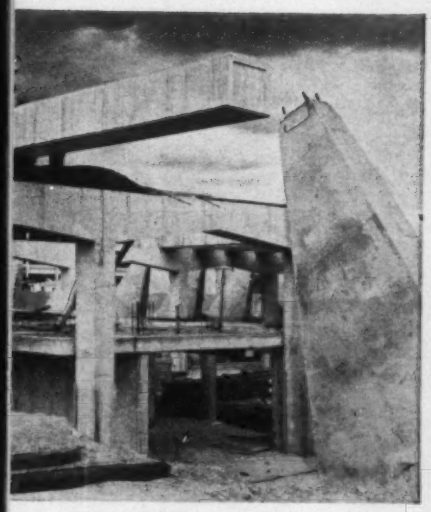
Space Age

The $3-million chapel at the U. S. Air Force Academy near Colorado Springs, Colo., was about as challenging to erect as it was to design.

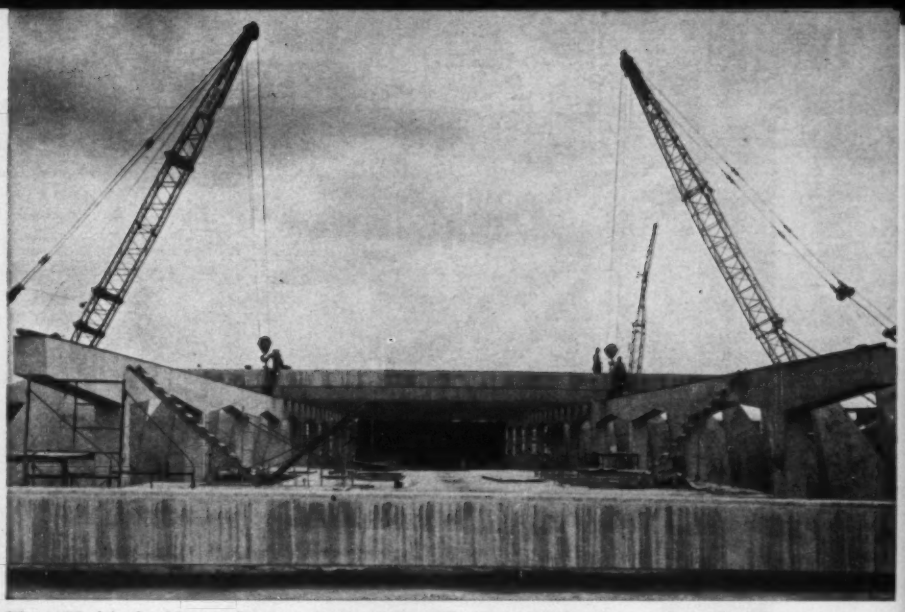
Its designers faced the difficult task of developing a distinctive structure without benefit of any exterior religious embellishments of the three faiths—Protestant, Catholic and Jewish—it will accommodate. They had to vary space requirements and position and entranceways for all three areas of worship.



LATHERS lay wire mesh for bottom slab of a double floor between upper and



Hollow sections weigh 25 tons, and need a seven axle trailer for delivery.



CRANES lift the 80-ft girders into final position. They span 47 ft with cantilevered ends just inside the lines of steel spire pedestals.

Symbol: Air Academy's Chapel

Its erectors were faced with two major construction problems: Erecting long-span prestressed concrete girders to support the Protestant floor, and erecting tubular tetrahedrons that form 17 spires 149 ft high.

The 80-ft-long, 25-ton girders are supported on concrete bents spaced 47 ft apart, beyond which they cantilever 16½ ft at each end.

Spaced 7 ft c-c, the girders are 3 ft wide by 2 ft 3 in. deep with hollow cores having as maximum dimensions 2 ft 3 in. by 1 ft 5½ in. The girders were post-tensioned with ⅝-in. strands in their lower flanges, six ¾-in. strands in their top flanges.

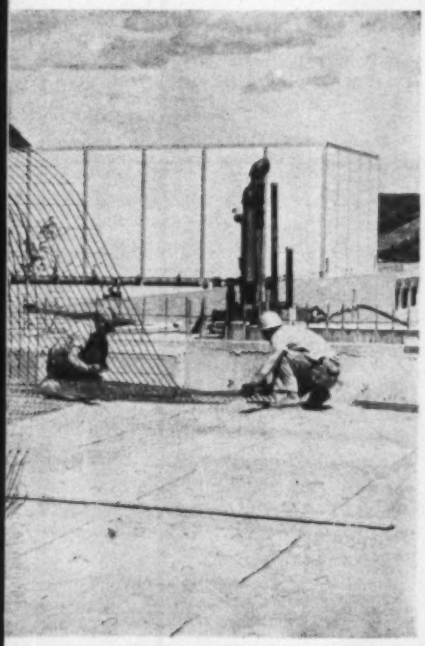
Erecting such heavy girders was tough and was made tougher by a wall enclosing three sides of the chapel site. The only access was at the south end.

A rail was put on top of each bent supporting the girders; two dollies with double-flanged wheels operated on these rails to roll each girder from the accessible south end of the building.

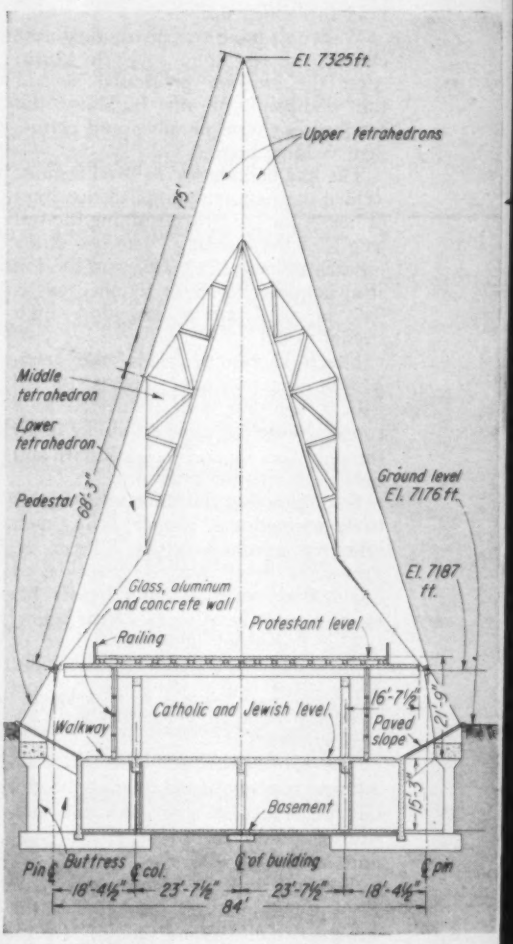
As the hefty girders arrived at the site, trucked from Denver 60 miles away, they were unloaded and stockpiled in groups of three or four at the south end of the building. Two cranes operating along the outside of the bents picked up each girder and hoisted it onto the dollies. It then rolled to position with a winch pulling it toward the north end of the building.

As it rolled, the two cranes moved along the building with it to a point where they could pick the girder off the dollies and seat it in its final position on the bents. The two-point pickup by the cranes was at the 47-ft span of each girder from bent to bent. Any other points of pickup would have resulted in erection stresses for which the girders were not designed.

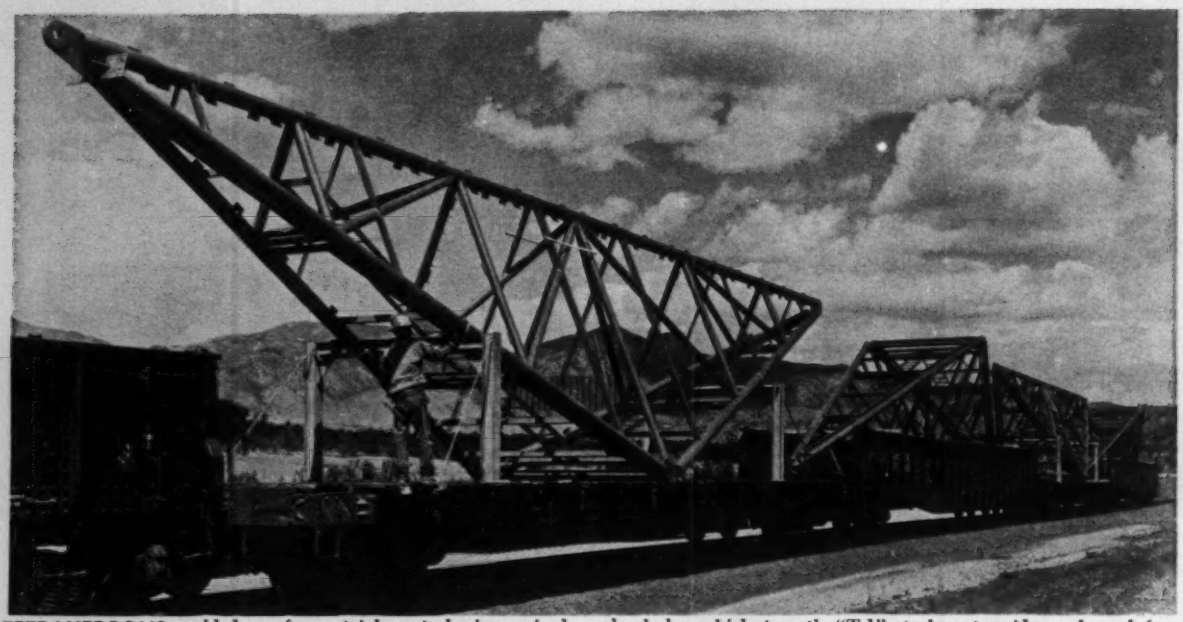
The 34 tetrahedrons comprising the chapel's 17 spires were fabricated in three sections—bottom, intermediate and top. The erectors put up five bottom sections, four intermediate sections and three top sections, to make the entire assembly self-supporting and stable against wind forces. They used tem-



lower chapel levels. **This slab is on precast plank laid over the girders.**



SPIRE FRAMING, pinned to pedestals, is independent of chapel above footings.



TETRAHEDRONS welded up from stainless steel pipe arrived at the site by rail. A total of 100 units were pinned into three levels by a high-strength "T-1" steel center ridge pole and four stringers to form the first-of-its-kind structure.

porary high strength erection bolts to hold this much up.

With this basic system up, they next erected the rest from south to north. After the erection progressed beyond the mid-point of the building, the tetrahedrons were plumbed and permanent welding began.

The tetrahedrons are 14 ft on centers, welded at their midpoints to five lines of box beams, or struts, running the full length of the building. The two struts on each side are 11x6.5 in., and the top strut common to all 34 tetrahedrons is 9x7 in. All are a low-alloy, high strength steel.

Sheet aluminum clads the tetrahedron spires. Each spire is topped with a lightning rod, connected to a copper grounding cable extending down through the supporting pedestals and buttresses into the ground.

Soundproofing the three areas of this tri-denominational chapel from each other was a prime necessity. The upper, Protestant level was designed as a double-floor, with a sound barrier between it and the other two areas below.

The Protestant floor has a base of 1½-in. reinforced concrete, precast slabs. These 6½-ft square slabs rest in slots along top edges of the prestressed concrete girders.

The contractor cast a 3-in.-thick reinforced concrete structural slab directly on these precast slabs and the prestressed girders, embedding electric conduits as he did.

Workmen then placed 8-in.-wide strips of half-inch cork insulation on the structural slab, spacing them 3 ft 6 in. c-c. The continuous strips of cork run perpendicular to the floor girders.

Next, concrete crews cast 14-in.-deep, 8-in.-wide reinforced concrete beams directly on the strips of cork and covered them with a 2½-in. thickness of molded glass fiber insulation material.

Finally, a 3-in. reinforced concrete slab with a 3-in. topping of terrazzo was put on permanent steel forms over the entire area.

Two reinforced concrete core-wells containing stairs and service facilities at the south end of the building, also serve as shear walls to resist wind forces.

The framing of the 17 spires along each side of the building is entirely independent of the upper floor and its supporting girders and bents. Buttresses and pedestals supporting the tetrahedrons are tied in to the floor slab of the lower level much as a tied arch is designed.

An outside walkway (with snow-welding coils) extends completely around the building at the lower, Catholic and Jewish, floor levels.

A glass-aluminum-and-concrete wall separates the walkway from the two interior areas. Most of the exposed concrete below the level of the prestressed girders is given a final finish of sand blasting. Considerable concrete block is used, especially in the sound-proofed partitions between the Catholic and Jewish areas.

Completion of the chapel is scheduled for this fall. It is the last major structure in the Air Force Academy's present construction program.

Academy Chapel: Vital Statistics

Foundations: Reinforced concrete grade beams, or pedestals and footings.

Superstructure: Reinforced concrete beams, slabs and columns, with structural steel pipes and shapes.

Exterior: (above Protestant level): Steel framing and aluminum panels with fixed windows at the ends. Stained-glass strip windows separate chapel's 17 spires for their full height. Heat-reducing glass is used at the south end of the building.

Exterior: (lower level): Stained glass windows in aluminum sash with accent strips of stained glass inserts set in concrete for the Catholic nave. Vertical wooden uprights with inserts of white opalescent glass for the Jewish synagogue.

Interior partitions: Reinforced concrete, concrete block and wood paneling.

Heating: Warm air through convertors from the Academy's high-temperature hot-water plant.

Size: Two stories, plus basement. 54,000 sq ft of floor area.

Seating capacity: 900 in the Protestant upper level; 500 in the Catholic and 100 in the Jewish area of the lower level.

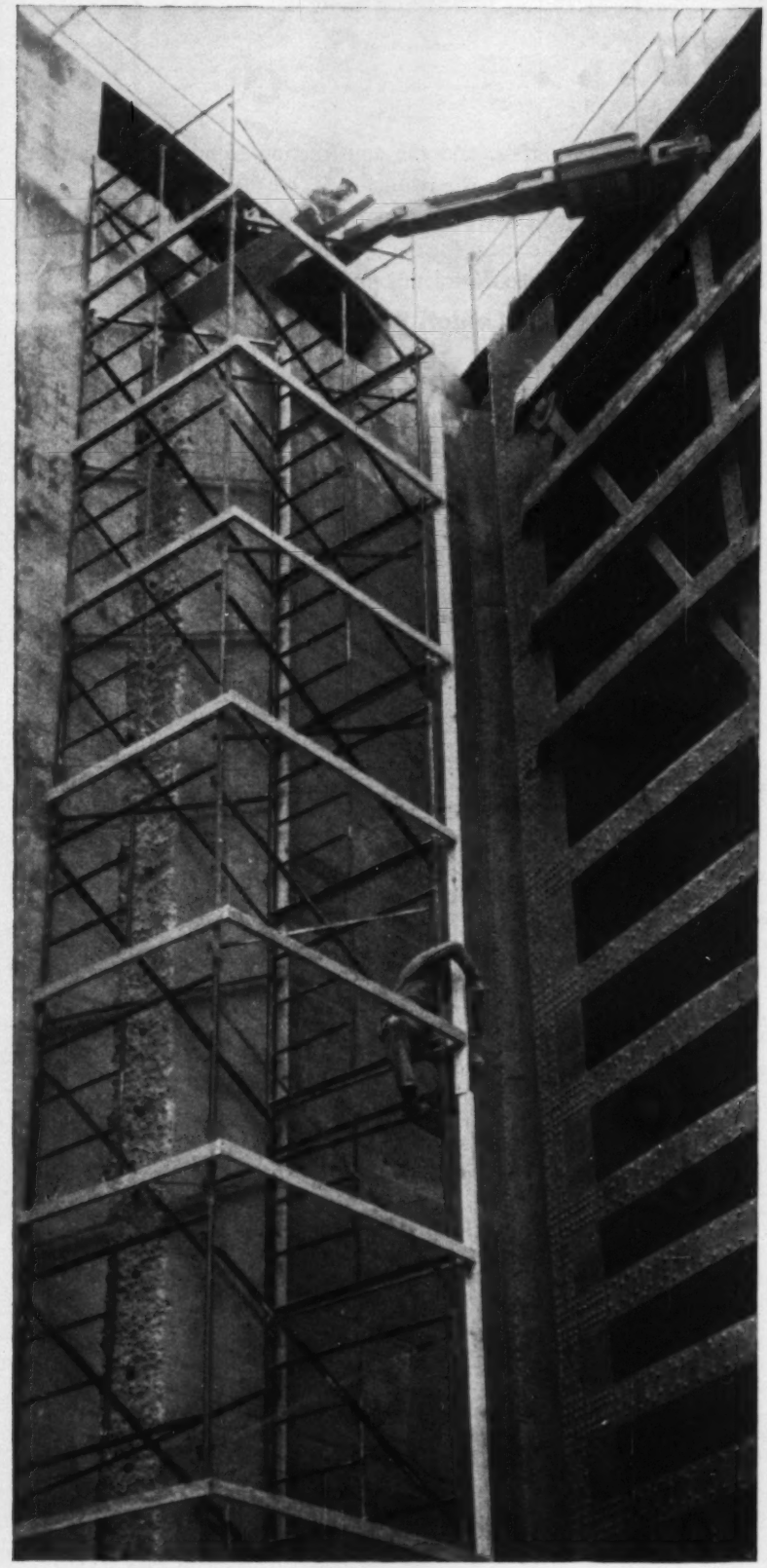
Wind design pressure: 50 psi.

Contractor: Robert E. McKee, General Contractor, Inc. (Wm. E. Robertson, general superintendent).

Architect-Engineer: Skidmore, Owings and Merrill (Edward A. Merrill, resident project manager).

Air Force Academy Construction Agency: Lt. Col. Powell H. Taylor, director; Maj. C. E. LaBombard, resident engineer; W. D. Bottini, chief, construction division.

HOW TO MAKE LITTLE OF BIG REPAIRS



Polysulfide-epoxy adhesive speeds, simplifies concrete reconstruction on big river lock

After years of wear and weather, Lock #1 desperately needed reinforcing. Repair time was important. Shipping could not be interrupted for an extended period. Soil conditions were poor. Driving sheet piling proved impractical.

Through use of concrete adhesive combining THIOKOL polysulfide polymer and epoxy resin, engineers met the problems squarely.

By applying the compound to existing base structures (areas where concrete had worn and eroded), they were able to add new sections of reinforced concrete. Adhesive bond between old and fresh concrete provided by the polysulfide-base material proved *stronger than concrete itself,* in effect created one continuous structural unit.

Repairing sidewalls: polysulfide-epoxy adhesive used to grout steel dowels into existing walls, cured inside 24 hours. Well-anchored dowels tie old and newly-poured-in-place vertical columns of concrete. A strong, unified structure delivered well within limited time schedule.

Waterproof, practically indestructible, the bond produced by THIOKOL polysulfide polymer/epoxy adhesive has restored better-than-new serviceability to highways, bridges, buildings, dams, locks, reservoirs. Big job and small, all were done with great economies in time and dollars. *For full information, write for brochure CA-200.*

Thiokol®
CHEMICAL CORPORATION
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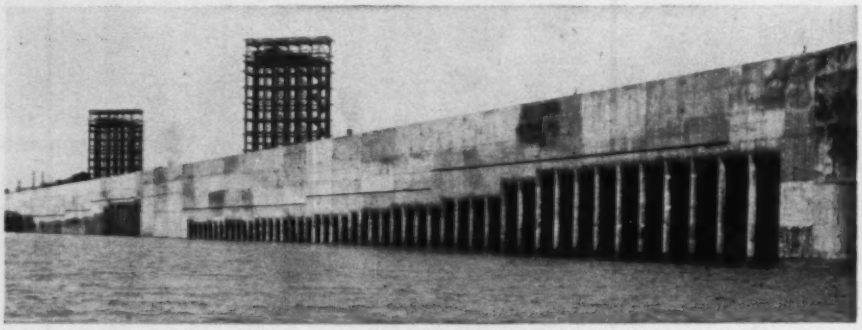
3,500,000 CUBIC YARDS OF CONCRETE . . .

That's the quantity required for the western world's largest power installation—the Niagara Power Project. Neither words nor figures, nor the pictures here, can truly describe the magnitude of this Project. Only those who had an opportunity to see it during construction can fully appreciate the planning skill, the coordination of men and materials, and the construction techniques that have made it a reality.

We are proud to have been the major supplier of cement for the 3½ million cubic yards of concrete needed for this project.

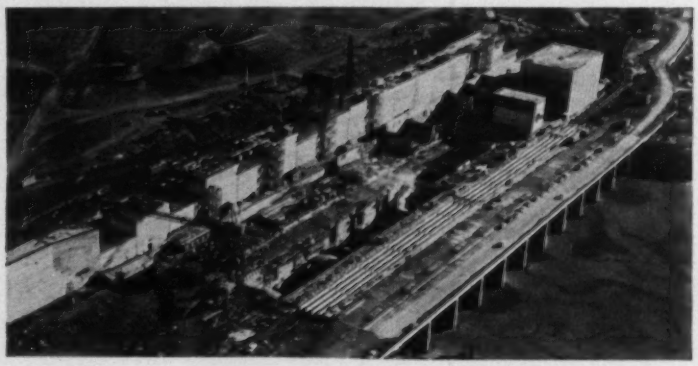
Lehigh Portland Cement Company
ALLENTOWN, PA.

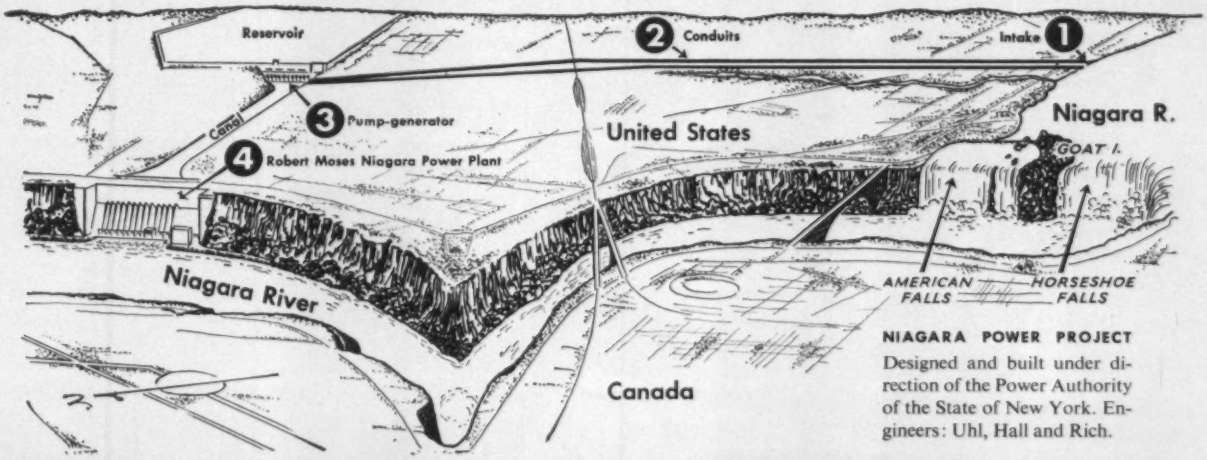
1 The "harmonica" intakes are two reinforced concrete sections, each 700′ long, located 2½ miles above Niagara Falls. Each section admits water to its own concrete conduit. In operation, tops of the intake slots vary from 13′ to 26′ below the river surface. The gate structures for each conduit are seen above the intakes. **Contractor:** Merritt, Chapman and Scott Corp.



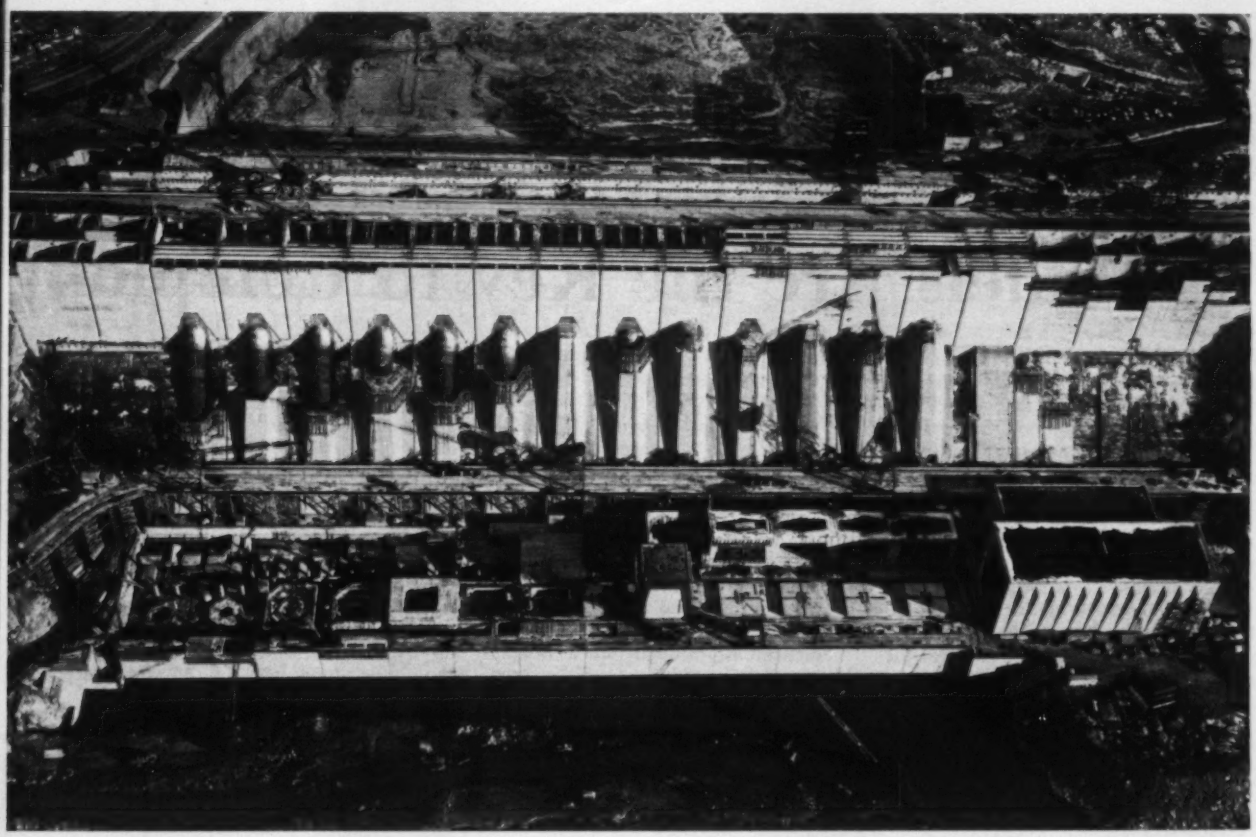
2 A section of one of the two concrete conduits which run from the intakes some 4 miles through the city of Niagara Falls and the towns of Niagara and Lewiston. Walls and floors of conduit are a minimum of 2½′ thick, and the haunch section is about 7′ thick. The arch is 5′ thick at the top and 6′ at the base. The inside of each conduit measures 46′ wide by 66′ high to the crown of the arch—a size equivalent to six double-track railroad tunnels. Conduits were built in 40′ sections employing traveling concrete forms. Tops of the conduits average more than 40′ below the ground surface. **Contractors:** Merritt, Chapman and Scott Corp.; Edward Balf Co., Savin Brothers and D. W. Winkelman in joint venture; Gull Contracting and L. G. Defelice & Son in joint venture.

3 Water enters open canal from conduits. Pump-Generating plant is 974′ long, 160′ high and 240′ wide. Reversible pump-turbines pump extra water available at night, under U. S.-Canadian treaty, into a storage reservoir. During daylight hours water is released through these reversible units to provide 240,000 kw. Water then continues to main generating plant to be reused for more power. The lower deck of the plant is extended over draft tube outlets to serve as a bridge to carry the permanently relocated Military Road and the new Niagara Expressway. **Contractors:** Tuscarora Contractors, Arundel Corp., L. E. Dixon Co., and Hunkin-Conkey Construction Co. in joint venture.





NIAGARA POWER PROJECT
Designed and built under direction of the Power Authority of the State of New York. Engineers: Uhl, Hall and Rich.



4 The Robert Moses Niagara Power Plant seen here, in combination with the reservoir plant, forms the western world's biggest power project. The reinforced concrete structure is approximately 1,840′ long—the length of five football fields. It is 389′ high, 580′ wide. The 13 penstocks (the first generator began operating February 10) are concrete encased and concrete anchored. Two four-lane concrete highways will pass over the downstream face of the intake structure. Some of the 599 prestressed concrete beams to carry these roadways can be seen in the photo. **Contractor:** Merritt, Chapman and Scott Corp.

LEHIGH
CEMENTS

The George Washington Bridge is being expanded under full traffic with 54 contracts in two miles on

Models Are the Key to Complex

Put 30 lane miles of road over, under, in and around a two-mile stretch of existing highway. In that same two miles, build 26 major bridges, most of them skewed or curved—some up to 360 deg. Carve out almost a million cu yd of rock. Connect nine major highways with both ends of a 14 lane double deck bridge. Create a road system so complex that a million dollars worth of signs are needed just to tell motorists which lane to get into to reach their desired destination. Do all this—and more—in a heavily congested metropolitan area that for the most part is only a city block wide. And while you're doing it, keep more than 100,000 vehicles moving smoothly through the area every day.

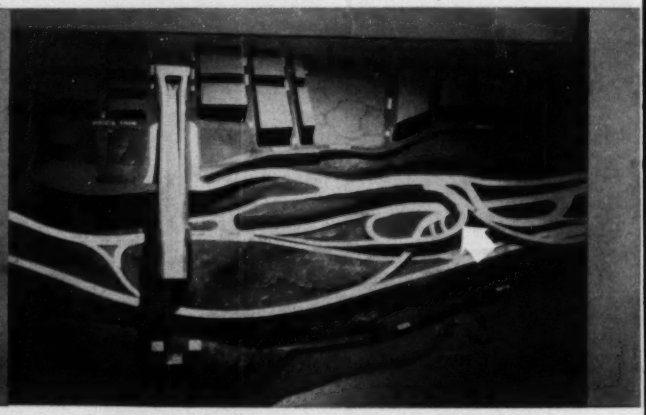
That is the problem that for more than four years has faced the Port of New York Authority in construction of the New York and New Jersey approaches to the George Washington Bridge, which spans the Hudson River between Fort Lee, N. J. and Manhattan. It's a problem that will continue to face the PNYA until its George Washington Bridge project is completed in 1962.

Starting from scratch in a wide open Midwest plain with no traffic to consider, the job would be difficult; in the heart of a city and at both ends of one of the busiest bridges in the world, the job is next to impossible. But they're doing it—and with a minimum of confusion and almost no serious dislocation of traffic.

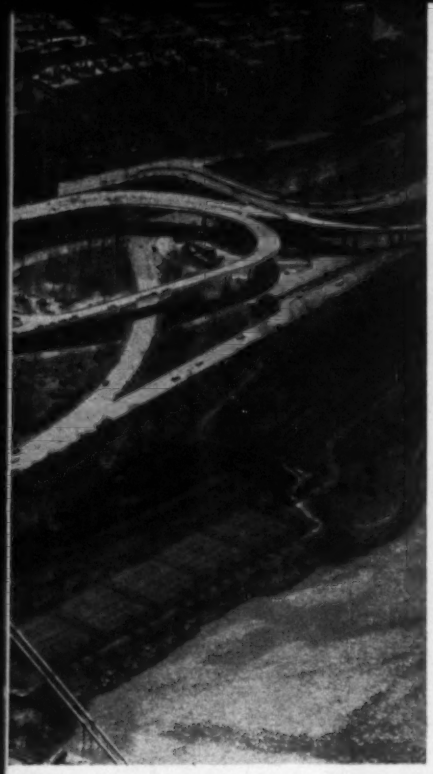
The construction problems on such a project are innumerable and complex, but the problems of planning and coordinating the work on such a project are at least as great, and perhaps even more important. For the authority must do its best not to inconvenience the thousands of residents of the area and

Models show construction stages

To a section of the basic model, planners add . . .



a long ramp plus connections to existing roads . . .



the New York side . . .

Job Staging

the tens of thousands of motorists who must drive the route every day. As a large and powerful public agency, the Port of New York Authority is often the subject of bitter controversy. Consequently, good public relations are a must—and in this case, good public relations require good planning.

And another point—one of sound economics: in a job so closely knit that 54 major contracts and dozens of minor contracts are crammed into a short distance—and where the work is so staged that two contractors may start at opposite ends of a helical ramp with a scheduled completion somewhere in between, the timing must be perfect or the claims for extras by the contractors could well be excessive.

The story behind planning, scheduling and coordinating the various projects at the bridge is one of patience, study, foresight, and work. It's a story that began in the mid 1920's when the Port of New York Authority was designing the George Washington Bridge. P. A. engineers, headed by the now internationally renowned O. H. Ammann, realized that the bridge as then planned would not meet traffic demands indefinitely. For this they designed and built the structure to carry a lower deck (ENR Jan. 28, 1960, p. 44). They originally expected this lower deck to carry rapid transit trains—as it may yet. But the travel habits of people change and the automobile is today a preferred mode of transportation. The number of people entering the main business district of Manhattan every day increased by only 45,000 between 1940 and 1956 (3,271,000 to 3,316,000). The number of vehicles entering the same area during the same years increased by 168,000 (351,000 to 519,000).

Many of these vehicles use the three major Hudson River crossings—the Holland and Lincoln tunnels and the George Washington Bridge. The bridge carries about half the total.

Yet a survey made in 1953 turned up a surprising fact—more than 51% of the week-day traffic and more than 63% of holiday and week-end traffic on the three crossings neither originated nor terminated in New York City. Thus of the 237,000 vehicles entering and leaving the city from across the Hudson every workday of 1959, more than 120,000 were cluttering city streets needlessly. On Sundays 153,000 vehicles of the 248,000 that come into the city are merely passing through—there is no other way to go.

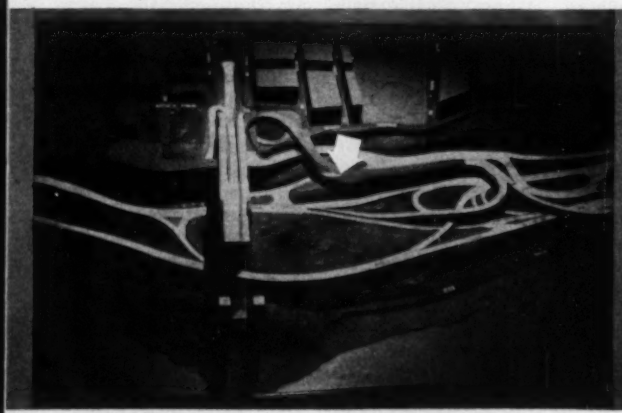
To reduce traffic jams on city streets, a master plan was developed by the Port of New York Authority, the Triborough Bridge and Tunnel Authority, the City of New York and the states of New York and New Jersey. Part of this plan involved construction of the recently completed Throgs Neck Bridge, which now by-passes New York City proper to carry traffic from upstate New York and New England into Long Island. It also called for the Narrows Bridge now under construction between Staten Island and Long Island. And it called for increasing the capacity of the George Washington Bridge by 75% as planned by its designers.

But enlarging the bridge as planned was not in itself enough. In recent years, many major highways have been constructed both in New York and New Jersey—the Garden State Parkway, the New Jersey Turnpike, the Long Island Expressway system, the New York State Thruway, the Major Deegan Expressway. They rate well up among the busiest roads in the country, and much of their traffic must use the bridge across the Hudson. Connections between these roads and the bridge had to be made.

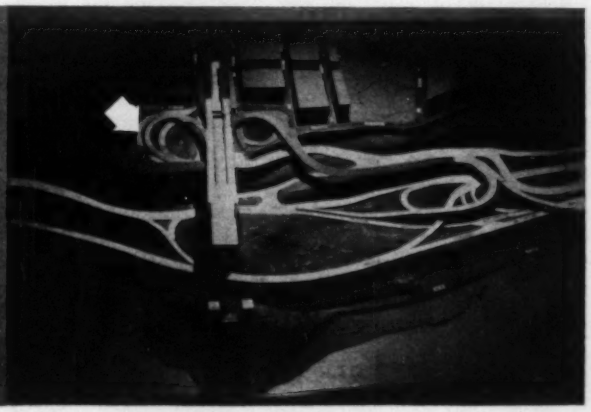
The problem is not only one of connecting the roads with the bridge, but with either or both decks of the bridge—and in both directions.

In all, connections had to be planned to meet three basic criteria for bridge operation: 1. A vehicle coming towards the bridge from any approach road on either side must be able to get on to either the upper or lower deck, and on leaving the bridge from either deck must be able to make connections with any road on his exit side; 2. the traffic on two center lanes of the bridge's upper deck is to continue to be reversible so that during rush hours, eight of the structure's 14 lanes can carry vehicles in the direction of the heaviest traffic flow; 3. it must be possible to close off the lower deck, should light traffic so warrant, and send all traffic over the upper deck.

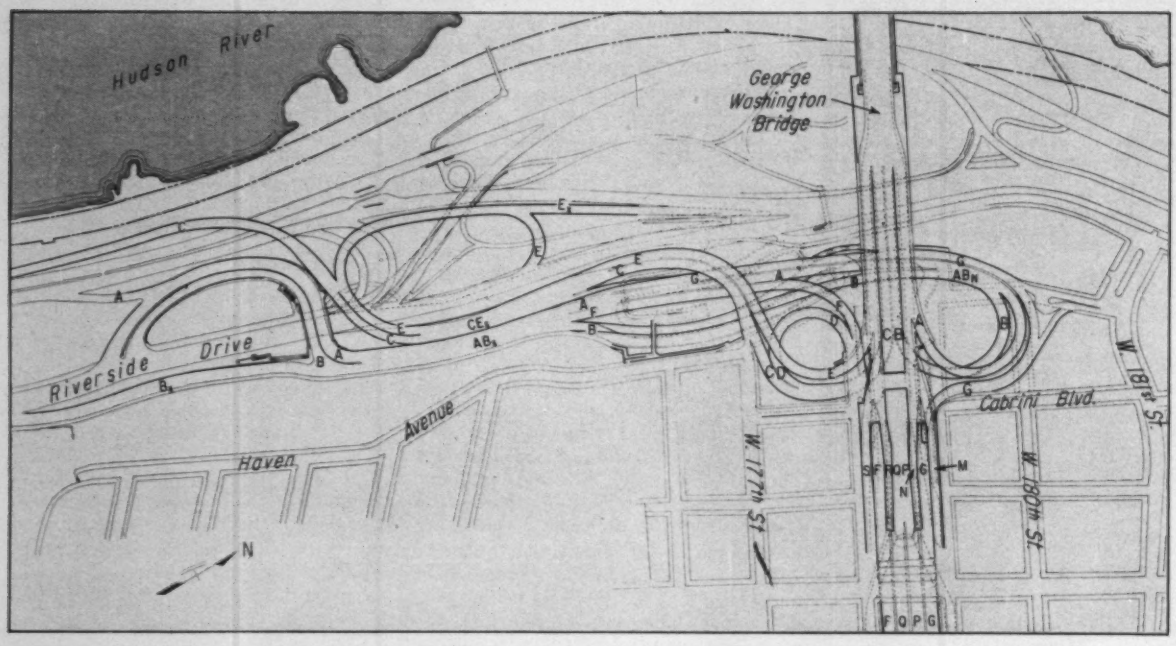
It is these criteria that made necessary the barrel-of-eels design that forms



another section of the ramp plus 3-level connections . . .



and helical ramps to the bridge decks.



GENERAL PLAN of the New York approaches next to Hudson River shows some of the complexities of the work. Each segment of the job was staged for contractors by Port Authority engineers. Sample of staging plans are at right.

the approach roads at both sides of the bridge.

On the New Jersey side, the work consists basically of constructing two three lane depressed roadways, one on either side of the existing approach plaza, and of connecting these roadways to the lower level of the bridge. It also involves erecting new toll plazas for the lower level and a new administration building for the entire structure.

On the New York side the work requires construction of a 12 lane depressed expressway running across Manhattan from the Hudson River to the Harlem River between 178th and 179th Streets, erection over this roadway of a two block long, three level bus terminal (cost: $13 million); and it also involves building connections between the expressway and city streets and between the bridge and both Riverside Drive and the Henry Hudson Parkway.

Scheduling of work on the New Jersey side of the river was by no means as difficult as that on the N. Y. side, but stage construction was necessary. Except for a single, narrow fault area, all the excavation in Fort Lee was through hard rock. Blasters drilled and shot within feet of operating roads and occupied structures. And because the trap rock fell out in huge blocks, there was constant danger of undermining.

The most difficult section of the approach is in the area just west of the anchorage, where the six depressed lanes converge to meet the bridge roadway. To do this, they have to come from outside the upper deck approach to an area directly beneath it. It had been decided originally that at least 80 ft of upper roadway must remain in operation, but this had to be expanded to 90 ft to maintain eight traffic lanes. The result was tight construction in five stages.

In the first stage, the rock was cut out of the south side of the approach and traffic flowed to the north. When the initial excavation was completed, the excavated area was bridged and decked to carry traffic.

The second stage excavation was immediately to the north of the first and traffic was split—some going over the decked first stage excavation, the remainder using the unexcavated area to the north.

Stages three and four are a repetition of stages one and two, with the work beginning on the north side. Stage five will complete the gap between the other four stages.

The big problem in this area is supporting the usable roadways. A complete tunnel section, which will be supported ultimately by a heavy roof beam carried by a single vertical column beam at each side of the roadway, cannot be constructed in the limited width of the individual stages.

Thus in stage one and stage three, the vertical columns are erected but they can support only a short section of the roof beam—and that at only one end. The other end of the roof beam must be underpinned to withstand vertical and horizontal forces.

As each short section of roof beam is installed, the complete tunnel section is cast over it, waterproofed and backfilled so that the upper roadway can be recast above it at the desired elevation.

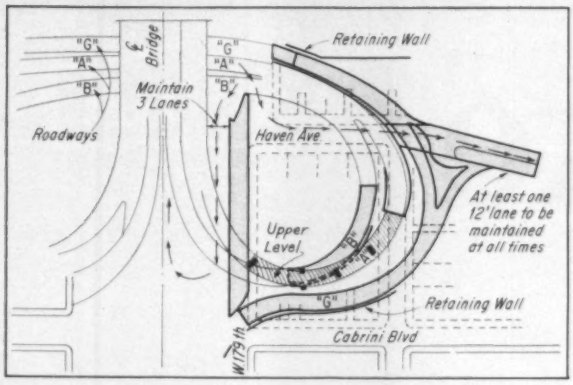
Rock blasting for stage two and four requires great caution because it is close to the roof beam underpinning of the previous stages. As subsequent stages are completed, the roof beams for these stages are connected to those of the previous stages, and the inside ends are again underpinned.

Stage three is now virtually completed and stage four is about to begin. Not until stage five is completed can the final sections of the roof beams be installed and the underpinning removed.

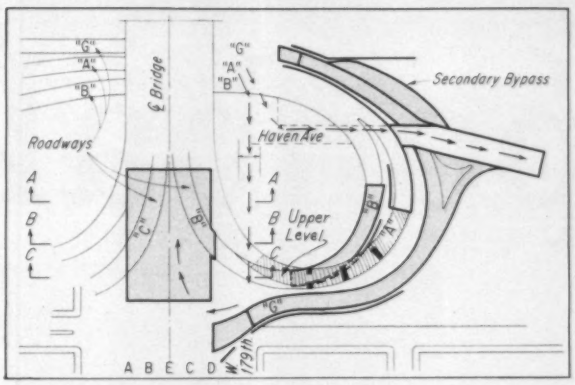
Several other sections of the Jersey approaches called for stage construction. Bridges over the existing approaches at Lemoine, Center, and Linwood Avenues all had to be lengthened to permit widening of the approaches beneath. Lemoine Avenue is part of a heavily traveled state highway and cannot be closed. For this reason, the east half of the structure is being lengthened while traffic uses the west half. Later the condition will be reversed.

The other two bridges, being on local streets, were closed when they were widened and required no staging. But at another location, excavation of the lower east-bound roadway is awaiting demolition of the present administration building—which in turn is awaiting completion of the new administration building.

The real staging job, however, is on the New York side of the river and the effective planning for this work began with the making of scale models. Originally, PA engineers tried to plan and stage their work with drawings superimposed on drawings. However, complexities of three and four level helical



STAGE 2 Drawing of triple helix just north of bridge shows areas of work and traffic flow patterns.



STAGE 3 continues work started in Stage 2, adds more and changes traffic patterns to clear new work.

ramps, of widely divergent traffic flow patterns, of demolishing buildings completely across Manhattan for the width of a city block while maintaining the numerous utilities that traverse the area, made the use of drawings unsatisfactory. Hence the models.

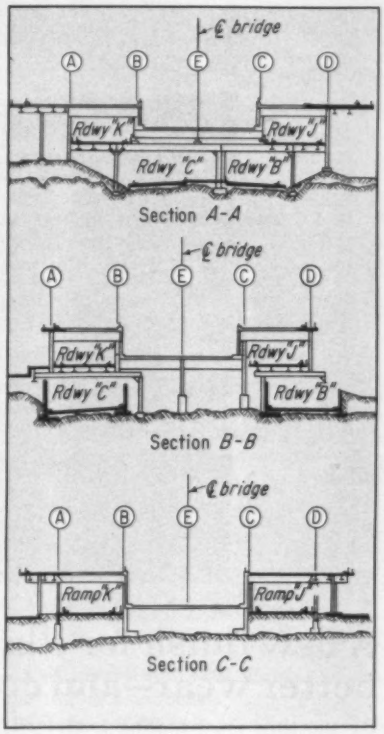
In all, three models have been built. Two, nicknamed "The Monsters," are to a 10 scale. They have had limited applications to construction staging, being used principally to train PA police to handle traffic flow on both sides of the river. These models have also been used to show public officials and the general public what the George Washington Bridge project will look like when it is completed.

The remaining model, a 50 scale take-apart of the New York side, was actually the basis for all project scheduling and staging, and it was from this model that the staging drawings were made.

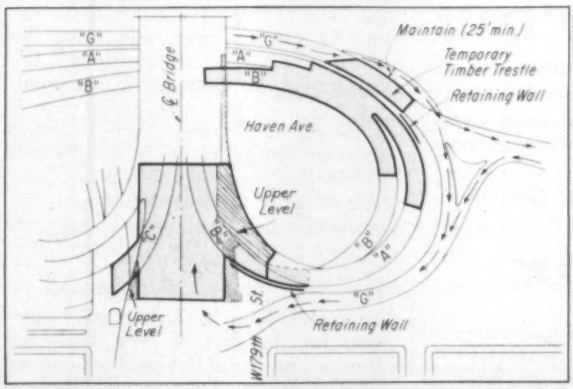
The greatest need for the model was in scheduling the numerous ramps and bridges to be erected in the narrow area between Washington Heights and the Hudson River. Here, te job appears to widen out—but "appears" is the proper word. Actually, the width of the project at this point is about the same as it is throughout the rest of the project—except that the longitudinal axis of the work is perpindicular to that of the rest of the job, like the crossbar on a "t." Why the shift in axis direction? Here the bridge decks are at elevation 211. and 183.5 respectively while both Riverside Drive and the Henry Hudson Parkway are at elevation 100.0. And since the topography of the area prevented a widening of the work, it had to be elongated in a north south direction.

Traffic flow studies indicate that about 16% of all bridge traffic either comes from or goes to the drive or the parkway. The need for maintaining this traffic flow while building new approaches is therefore quite obvious. However, Port Authority engineers found that computations and drawings left much to be desired in planning and staging the Gordian knots of concrete that are to become segments of the interchanges in this area. The model filled a gap by permitting both engineers and contractors to see what they are trying to produce, and it helped the engineers to produce the complex staging drawings that are included as part of virtually every major contract on the project. A simplified example of these staging diagrams is shown on this page.

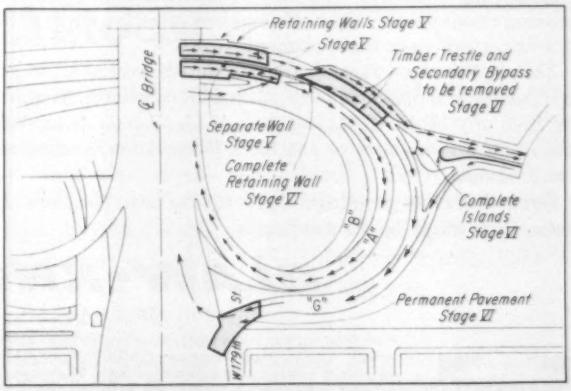
The staging is not as complicated in the area east of the bridge approaches, but it requires careful planning. From the bridge eastward the 12 lane expressway is being cut from Manhattan schist



ELEVATION sequence reflects variations resulting from helical shape of ramps.



STAGE 4 Construction fills gaps in helix and again forces shift in direction of traffic.


℄ Bridge
Retaining Walls Stage V
Stage V
Timber Trestle and Secondary Bypass to be removed Stage VI
Separate Wall Stage V
Complete Retaining Wall Stage VI
Complete Islands Stage VI
Permanent Pavement Stage VI
W 179th

STAGES 5, 6 complete the contract work. Notes beneath each stage drawing explain individual items and procedures.

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HENRY A. DRUDING, senior resident engineer for P.A. stands before bridge tower.

at depths of up to 36 ft below the surface. They're making the cut between 178th and 179th Streets, immediately adjacent to two tunnels now carrying traffic between the bridge and eastern Manhattan and the Bronx. These tunnels have to be maintained until the cut—or other streets—can handle the traffic they now carry. This poses a problem, since the ventilating buildings are directly over the route of the cut.

The rock excavation in the cut is now in stage 3. This means that the rock has been removed everywhere except immediately under the ventilating buildings, which now stand on rock pedestals only a little wider than the buildings themselves (less than 5 ft on the west side) and 35 ft high. When stage 4 begins, they'll demolish the north building, close the north tube and route the tube's traffic through city streets. At the close of stage 4, about half the cut will be paved. Traffic, now using the south tube will be routed through the cut around the south ventilation building, which will be demolished in stage 5.

Henry A. Druding, Port Authority engineer who had charge of construction of the third tube of the Lincoln Tunnel, is senior resident engineer for the entire George Washington Bridge expansion program. The Authority's resident engineer in New York is George J. Husing; in New Jersey, it's Francis H. Werneke. John M. Kyle is chief engineer for the Port of New York Authority, and Irvine P. Gould is Engineer of Design for Tunnels and Bridges. Louis F. Booth is engineer of construction.

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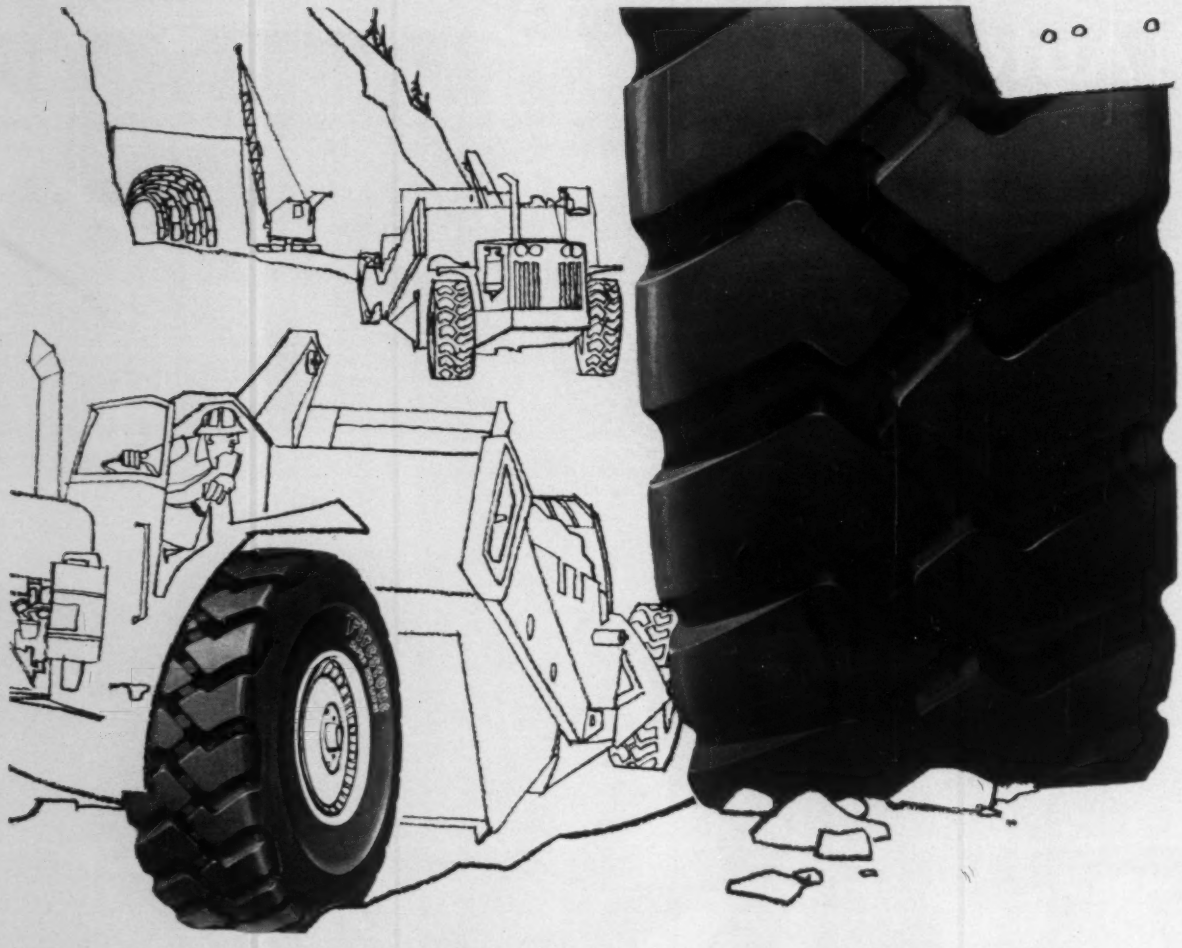

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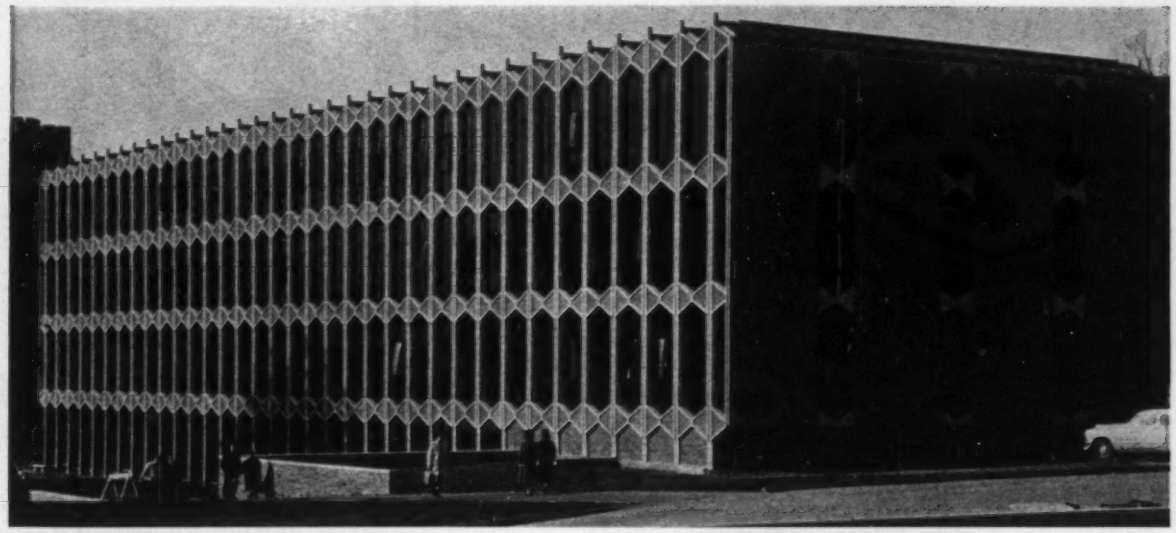
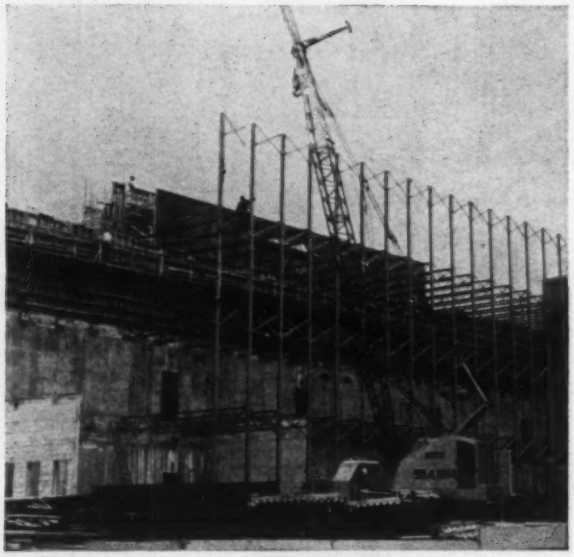
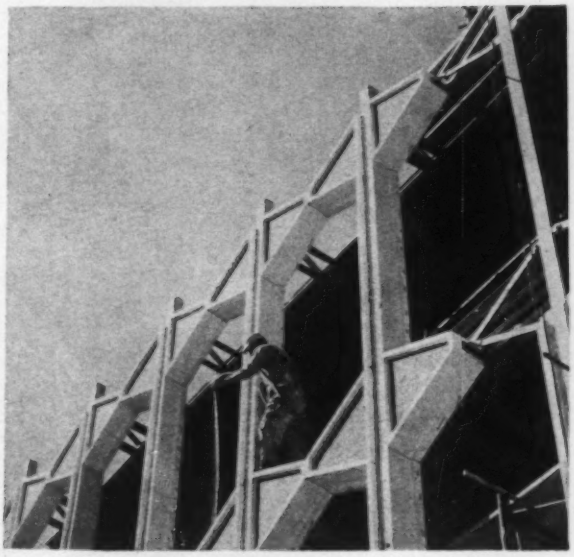


Precast concrete facing blends new building with old at University of Washington.



Steel framing flanks interior concrete core.



Two basic precast units face steel framing.

Precast Concrete Gives Gothic Look

Modern construction materials combine in an unusual way to preserve the traditional "Campus Gothic" architecture in the General Engineering Building at the University of Washington in Seattle. The Gothic look is produced by precast-concrete facing molded to fit over light steel framing at the building periphery.

The steel framing consists of exterior wide-flange columns spaced 6 ft c-c and steel joists spanning about 26 ft across the classrooms. Light angle X-bracing, substituted for spandrel beams because of the close column spacing, forms the outline and the support for diamond-shaped pieces of facing. Channel-shaped lengths of precast concrete enclose the steel columns on three sides, leaving the interior column flange open for metal lath and plaster finish.

The precast panels have interior areas of exposed aggregate framed by light, smooth-finished trim. Spandrel sections are backed with foamed-glass insulation.

Harmon, Pray & Detrich, architects-engineers, Seattle, designed an interior reinforced concrete structural frame to resist wind and seismic forces on the four-story building, which measures 65x210 ft in plan.

The concrete frame, comprising bearing walls and corridor slab spanning about 12 ft, continues through the building length. Concrete beams at the second-floor level carry the bearing walls across a lecture hall at one end of the building. Lugs cast on the walls provide interior bearing seats for the steel joists.

Total project cost was $1.06 million; unit cost was $18.80 per sq ft.

General contractor was Wick Construction Co. of Seattle.

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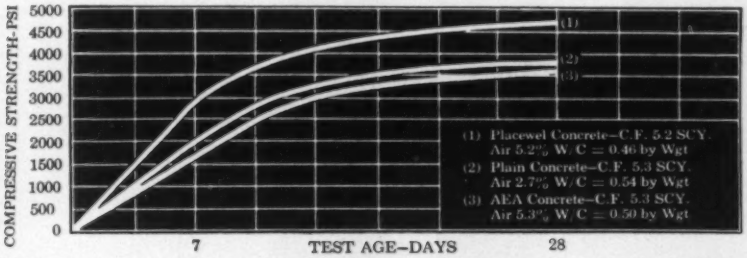

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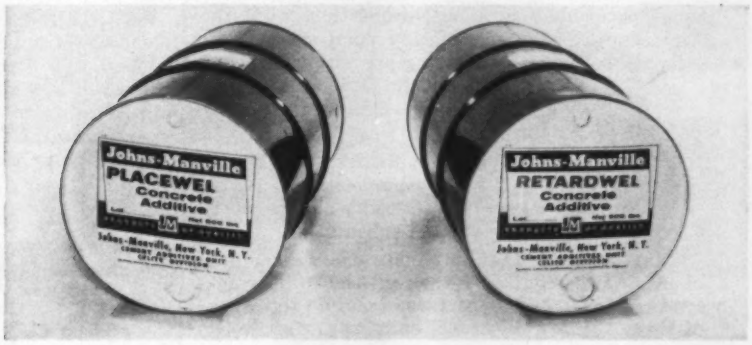

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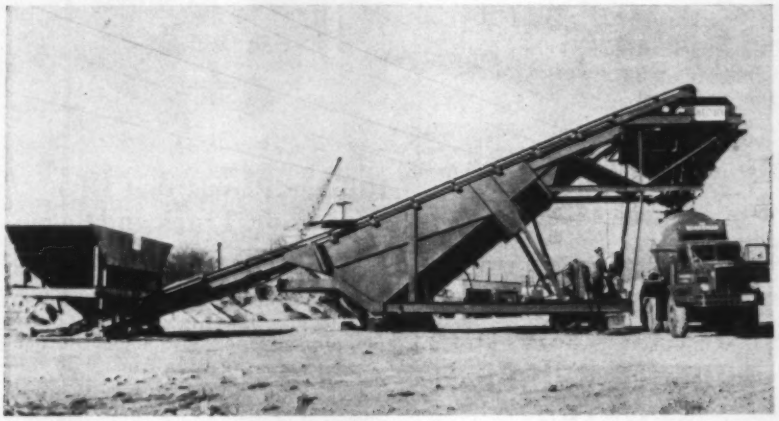

SELF-ERECT mobile batch plants come in two components, aggregate bin, at left, and cement unit. Cement is stored in triangular bin underneath the conveyor belts.

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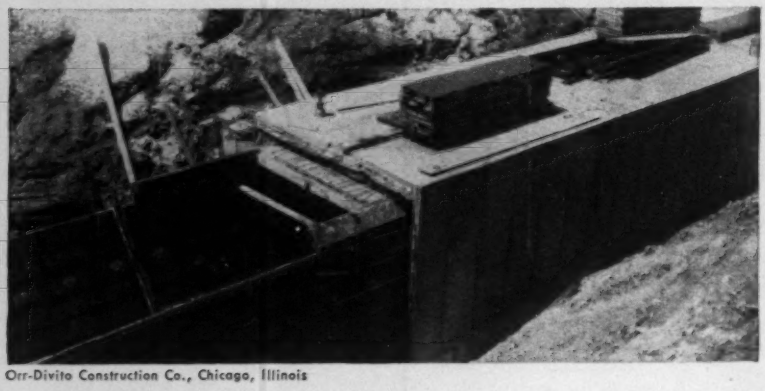

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ft and a width of 10 ft. The aggregate units are 10 ft 4 in. high and 8 ft wide in transport.

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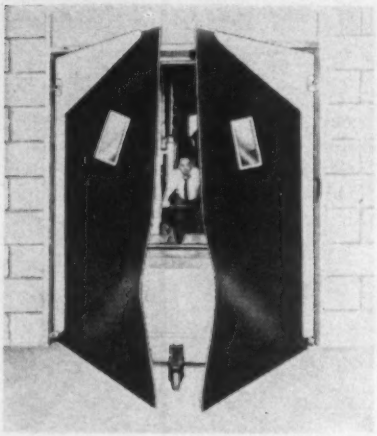
- Series 800—two-stop paving plants with 1½ cu yd batchers in capacities of 260 and 330 cu yd per hour.
- Series 900—mobile central mix plants in production capacities ranging from 90 to 270 cu yd of concrete per hour.
- All models have cement storage units of 350 bbl capacity. Power requirements call for 220 or 440 volts.

HELTZEL STEEL FORM AND IRON CO., WARREN, O.



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Hand trucks, fork lift trucks and power buggies pass through Flex-A-Matic doors without damage to either the door or the truck. Flexible, two-ply rubber panels give under impact, cutting noise, reducing damage to cargoes and saving repairs on both trucks and door sections.

The double swing doors are equipped with double-acting gravity V-cam hinges attached to a heavy 11-ga. steel frame.

Plexiglas windows and air seals are standard on all doors. The units, complete with frame, are made to any size specification.

"Stay Open" hinges and magnet closures are available as optional equipment. THE PEELE CO., 47 STEWART AVE., BROOKLYN 37, N. Y.

(*New Products continued p. 52*)

LINCOLN LUBROVANS® AND LUBMOBILES®

Make a mobile center for chassis, trac-roll, gear and transmission lubrication—plus fuel, water, motor oil and air service

You can take your service center where the work is with a mobile rig outfitted with your choice of modern service equipment. Choose from a selection of Lincoln *Power-Master* pumps that give you the widest choice of pressure ratios available anywhere (1:1 to 75:1). Interchangeable pump tubes and air motors let you easily convert a rig to different service when you need it. Only Lincoln offers you this complete design flexibility.

Lincoln supplies everything you need to design a rig . . . from the air compressor, pumps and reels down to the fittings and hoses. A Lincoln representative can help you choose the right equipment for your job from a large selection of standard items. His experience with lubrication equipment and rigs will help you avoid pitfalls . . . help you get the most from your equipment.

Send coupon today for Lincoln's equipment catalog and manual that shows you typical rig installations.

C6101

Lubrovan, Lubmobile, Power-Master: Lincoln trademarks. Reg. U. S. Pat. Off.

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Please send me Lincoln equipment catalog and manual illustrating typical Lubrovan and Lubmobile installations.

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*Based on DuPont "MYLAR" polyester film.

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MOORE & DeBRIS
BATON ROUGE, LA.
CONSULTING ENGINEER

In reply to the question as to where Moore and DeBris were going to put the new sewage disposal plant for Honeywater, Miss., Jarvis DeBris proudly replied:

"Where else but on Arkwright. When you use that perfect working surface, everything is clean and clear — no blobbing, no feathering, no ghost. And — Arkwright's new drafting film is ideal for making sharp, clean reproductions at fast printing speeds. You ought to try some — Arkwright."

For perfect performance on cloth, specify the roll with the blue line — Arkwright. See for yourself the advantages of Arkwright's perfect coated surface on drafting film. Film available in several thicknesses. Both cloth and film in cut sheets or rolls. Write today for free samples.

Arkwright Finishing Division, Arkwright-Interlaken Inc., Fiskeville, R. I.

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. . . New Products

Core Drill and Auger Combined in Single Unit

A core drill and auger that mounts on a flat bed truck or trailer is designed to handle all types of coring and sampling plus augering for water wells, foundations, etc.

Called the SP-68, the rig can put an auger down to 300 ft and can core drill to 1,500 ft. Diameters up to 24 in. are possible. Holes may be drilled vertically.

The self-contained unit has its own power plant, built-in tool bins, water tank and hydraulically operated mast and leveling jacks.

A four-speed cathead hoist, four-speed forward transmission and a reverse gear, hydraulic drill head, etc. are standard features of the unit. ACKER DRILL CO., INC., SCRANTON 2, PA.

Concrete Joint Sealer Fills Narrow Spots

Sealfastic, a pre-formed concrete joint sealer made of 1-in.-thick bats of polyurethane foam, can fit into joints as thin as $\frac{1}{8}$ in. This thin-strip will expand as much as 1 in. according to the manufacturer. Sealfastic can be placed in curved joints, filling all surface irregularities.

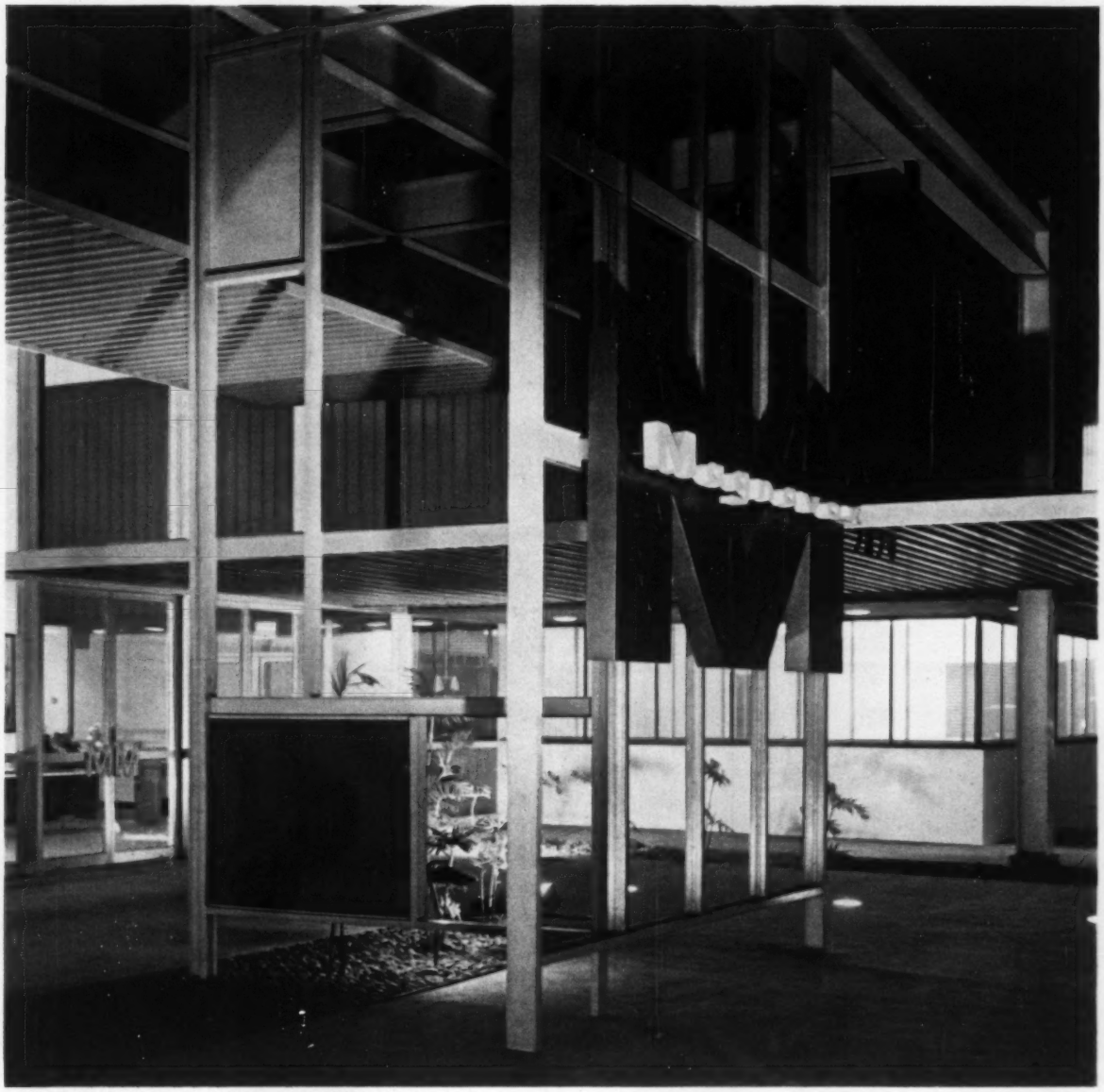
Flattened with a simple hand tool, the sealer is used for sawed and regular highway joints, for lift-slab and curtain-wall construction and for swimming pools and sewage works. Ten minutes after installation, it has expanded into joint irregularities and waterproofed, the joint, according to the manufacturer. NATIONAL EXPANSION JOINT CO., 1601 EMBARCADERO, OAKLAND, CALIF.

For Do-It-Yourselfers: Vibrating Screed Kit

Power pack, mounting brackets, end rollers and winches are included in a vibrating screed that comes as a packaged kit for contractors who prefer to make their own screed beam. Sold with the kit are instructions for making a steel sheathed wooden beam.

The power pack has an adjustable amplitude vibrator head and a 3-hp engine. End rollers are rubber mounted and have handles that can be lifted to let the rear rollers flip down so that the beam is raised off the surface of the concrete. This allows the beam to be rolled back for a second pass.

The winches included in the package mount on the roller assembly and have a 9 to 1 ratio. STOW MFG. CO., 19 SHEAR ST., BINGHAMTON, N. Y.



Building: Magnavox Research Laboratories, Torrance, Calif.
Architect: Risley & Gould, AIA, Los Angeles, Calif.
General Contractor: William Simpson Construction Co., Los Angeles, Calif.
Alcoa Alumalure Contractor: George D. Widman, Inc., Los Angeles, Calif.
Entrance: Rebco, Inc., Los Angeles, Calif.
Photographer: Ezra Stoller

Because Alcoa gave you a rainbow of color at budget prices, aluminum buildings everywhere can gleam with radiant beauty. Called Alcoa * Alumalure, this tough, baked enamel finish allowed a choice of 11 handsome hues, plus natural aluminum, that helped to make this workaday building an AIA award winner. And with it go all the traditional advantages — faster, easier erection and total freedom from maintenance — that have long made Alcoa Aluminum the architect's metal.

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Build for Beauty with ALCOA ALUMINUM

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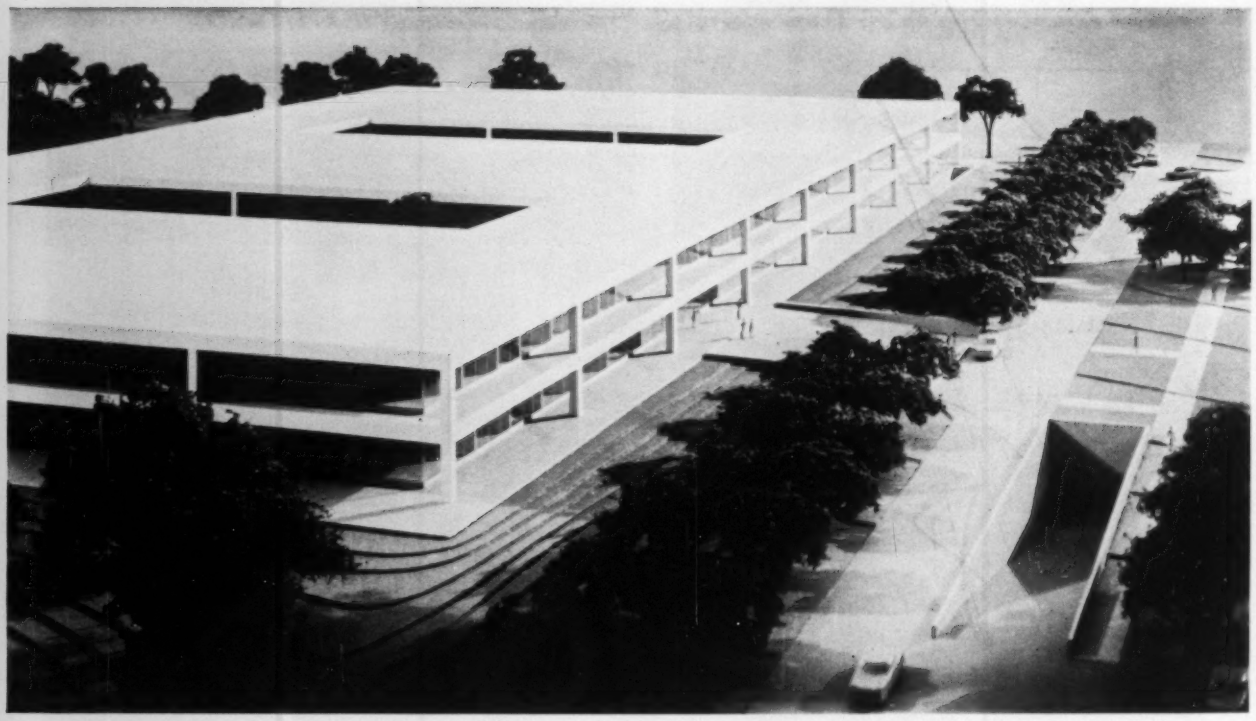
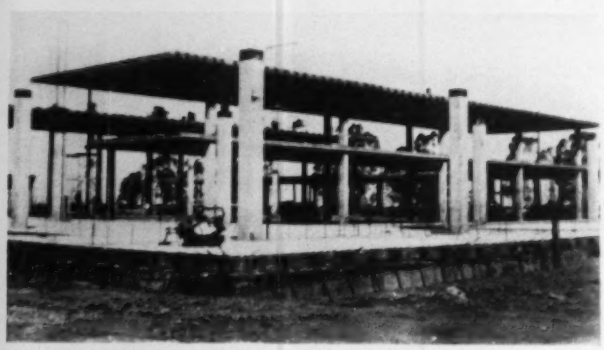
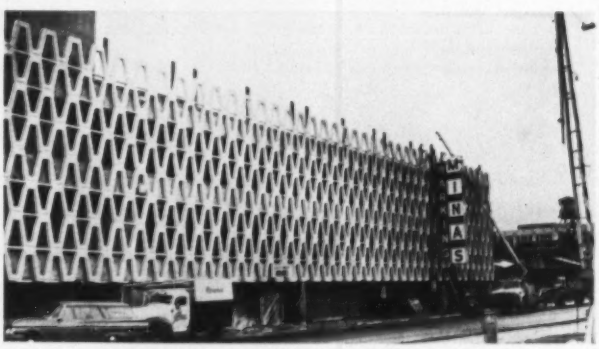
NEW...IN PRESTRESSED CONCRETE
these dramatic projects post-tensioned by Ryerson



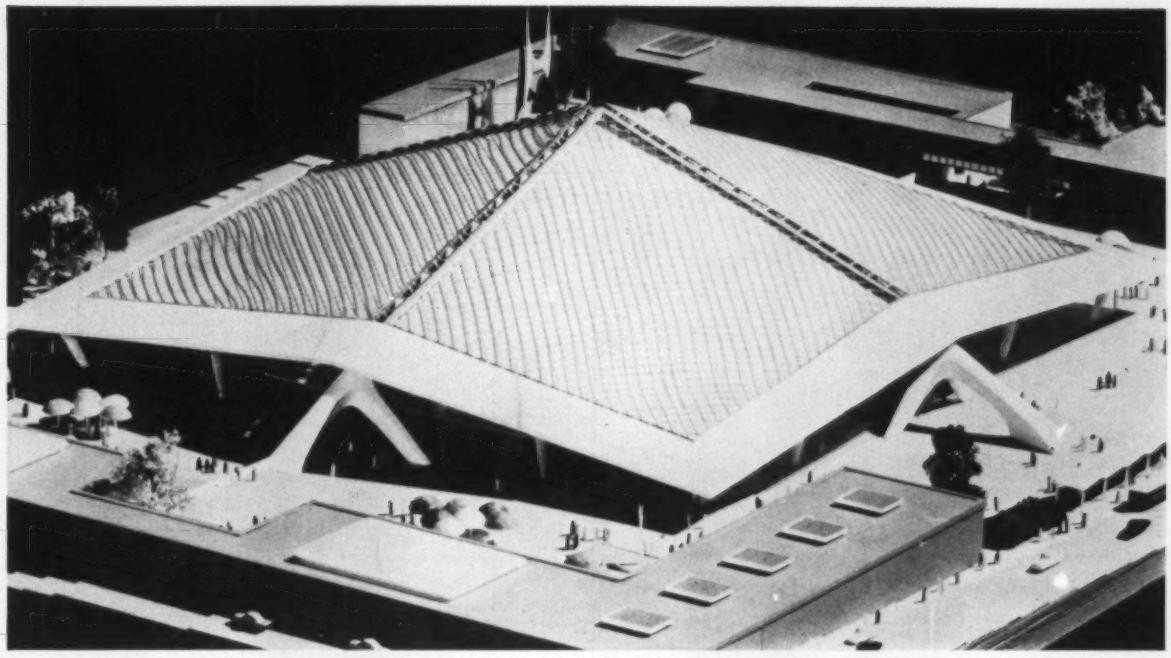
United Air Lines Executive Offices—Chicago. Continuous 2-way, waffle-type slabs 2'6" thick. Column spacing 60'x66'. Now under construction. **ARCHITECT:** Skidmore, Owings & Merrill. **CONTRACTOR:** Gust K. Newberg Construction Co.



St. Pius X Seminary—Galt, Calif. Lift-slab construction. 9" flat slab and approximately 30' column spacing. **OWNER:** Roman Catholic Diocese of Sacramento. **ARCHITECT:** Harry J. Devine. **ENGINEER:** Ernest Francis. **GENERAL CONTRACTOR:** Continental Construction Co. **LIFT-SLAB CONTRACTOR:** Vagtborg Lift-Slab Corporation, Los Angeles, Calif.



Multi-Level Parking Deck for Minas Department Store, Hammond, Indiana. Non-structural 2" to 6" topping on precast T beams post-tensioned two ways to provide crack-free weatherproof slab. Edge beams cast in place with conventional reinforcing. **BUILDER:** Triangle Parking Corp. **ARCHITECT & ENGINEER:** DeLeuw, Cather & Co. **CONTRACTOR:** Roy C. Clark, Inc.



Century 21 Exposition Coliseum—Seattle. Column-free interior 400′ square, 115′ high. Edge beams are post-tensioned and aluminum roof panels are supported by tensioned cables of galvanized wire. **BUILDER:** State of Washington, Dept. of Commerce & Economic Development. **ARCHITECT:** Paul Thiry. **CONTRACTOR:** Howard S. Wright Construction Co.

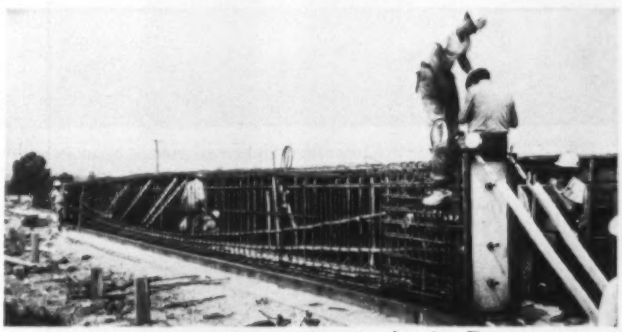
Presents new opportunities

As use of prestressed concrete gains momentum, Ryerson continues to set the pace with a complete service for this type of construction. Using the BBRV system, Ryerson post-tensioning service makes prestressing more practical and economical than ever—and presents new and dramatic construction opportunities such as those illustrated here.

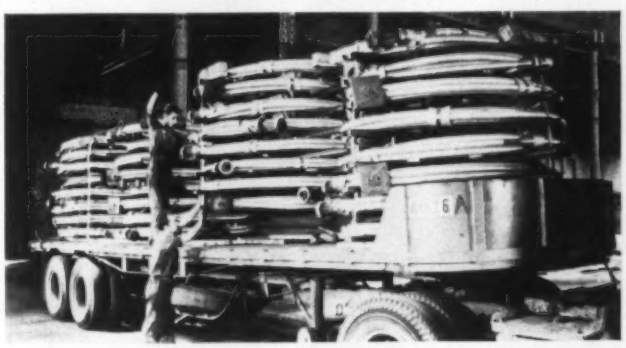
Covers every operation

This unique Ryerson service covers prestressed concrete application completely—from adaption of the engineers' design through the final stages of field erection . . . including force development calculations, quality-controlled tendon and anchorage assembly, equipment for precise stressing and positive grouting, job-site technical assistance and dependably scheduled deliveries. And the entire service is all wrapped up in a complete, single-price post-tensioning package.

For further information on post-tensioning and other Ryerson products and services for the construction industry, contact your nearby Ryerson plant.



Post-Tensioned Precast I-Beam—showing Ryerson assembled tendons and reinforcing in place.



Completely Assembled Tendons—are shipped on specially designed incoiling racks ready for easy installation.

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Columbia Calcium Chloride, effective all year, is especially beneficial in concrete when temperatures drop below 70°.

Spring chill slowing down your concrete jobs? Stay on schedule with Columbia Calcium Chloride

Warm spring days are almost here. But don't be caught off guard. There are still plenty of days—and nights—ahead when temperatures will skid below 70°. And you're still faced with the problem of keeping jobs on schedule in spite of the lag in concrete set caused by these low temperatures. You can keep cold weather jobs *moving* by adding Columbia Calcium Chloride at the rate of 2% by weight of cement to your mix. Columbia Calcium Chloride gives you these time-and-profit-saving benefits:

Higher Early Strengths—at 40°F, you get 3-day strength in 1 day, 7-day strength in 3½ days. There's no cold weather lag in strength gain; your job stays on schedule.

Faster Initial Set—Under normal conditions, Columbia Calcium Chloride cuts initial set time from 3 hours to 1 hour. At lower temperatures, the effects are even more pronounced. You get finishers on and off the job faster, avoid costly overtime.

Early Form Removal—Rapid strength gain permits removal and re-use of forms in about half the normal time.

Are you getting these Columbia Calcium Chloride cold weather benefits on your concrete jobs? If not, better analyze your batching procedure or contact your ready mix supplier today. Specify Columbia Calcium Chloride. For more information, contact your nearest District Sales Office or write our Pittsburgh Office.

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New Product Briefs

• **Multi-purpose flashing**—Fabricated in 10 ft lengths from 24 gauge steel, the flashing has a 16 in. cross-section girth and weighs 15½ lb. The legs of the flashing are pitched to 30 deg. angles. Applications include roofing, siding, ridge and valley flashing. STEELITE BUILDINGS, INC., 307 FOURTH AVE., PITTSBURGH, PA.

• **Magnetic sweeper** – Sweeperette, a hand propelled rotary magnetic sweeper, will pick up steel or iron parts and other ferrous scrap. The sweeper's magnetic bar may also be removed and used as a retriever magnet or a small batch cleaner. ERIE MFG. CO., ERIE, PA.

• **Tile adhesive** – Miracle MA-450, a high strength waterproof rubber base adhesive, will bond to any rigid, dry, hard, clean surface, according to the manufacturer. Coverage is approximately 50 sq ft per gallon and open time is up to one hour. MIRACLE CORP., 250 PETTIT AVE., BELLMORE, N. Y.

• **Air filter**—The AAF Dri-Pak inflates when a ventilation system is in operation and collapses when the system is shut down, thereby allowing inspection of the filter from the air-entering or air-leaving side of the filter bank. A 24 x 24 x 36 in. Dri-Pak filter is rated at 2,000 cfm and provides 95 sq ft of filtering media surface. AMERICAN AIR FILTER CO., INC., 215 CENTRAL AVE., LOUISVILLE, KY.

• **Slide rule kit**—The Special Purpose Slide Rule Kit enables an engineer to assemble a slide rule to fit a particular set of calculations. Three slide rule blanks and a set of instructions for laying out special slide rules are included in the kit. DYNA-SLIDE CO., 600 SOUTH MICHIGAN AVE., CHICAGO, ILL.

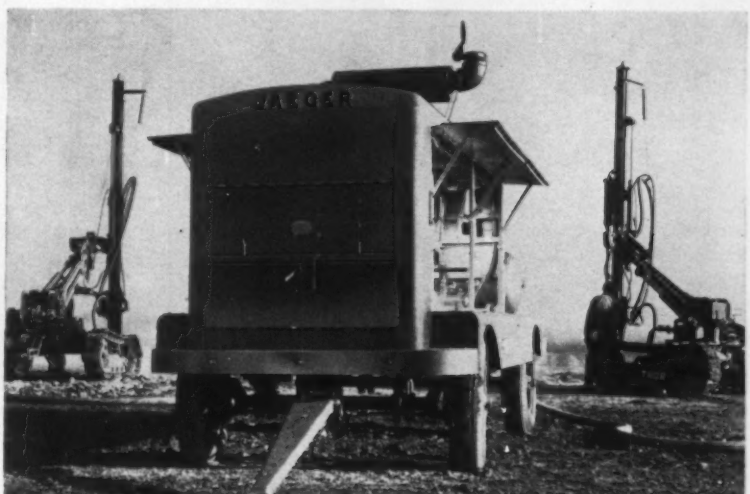
• **Concrete seal**—Tremcrete is a combination curing agent and seal that saves labor cost by eliminating constant wetting down of the concrete during the curing stage. The product is applied to new concrete floors 10 to 12 hours after final troweling and dries to a tack free stage in two to three hours. TREMCO MFG. CO., 10701 SHAKER BLVD., CLEVELAND, OHIO.

• **Hand fastening tool**—The HD-100 is designed for light fastening to concrete, masonry or light gauge steel, and will set drive-studs and drill-anchors. The hammer drive tool also has a reversible chuck which allows the insertion of a masonry drill. GREGORY INDUSTRIES, INC., LORAIN, OHIO.

RECENT S&H FOUNDATION INVESTIGATION PROJECTS IN THE PHILADELPHIA AREA

Photos courtesy of: The Ballinger Company • Architects and Engineers • Philadelphia, Pa.

SPRAGUE & HENWOOD, Inc. S&H
SCRANTON 2, PA.
New York • Philadelphia • Nashville • Pittsburgh • Tucson • Grand Junction, Colo. • Buchans, Nfld.



Maintains 100 psig behind two Thor TR-5 air-and-hydraulic crawlers with 4½" drifters without running faster than 1400 rpm.

JAEGER "900" is the efficient rotary

Delivers in excess of 900 cfm at a fuel-saving, engine-saving 1700 rpm. Other compressors, using the same GM 6-110 diesel, require 1800. See your Jaeger distributor, or send for catalog.

THE JAEGER MACHINE CO., 200 Dublin Ave., Columbus 16, Ohio

NEWPORT NEWS

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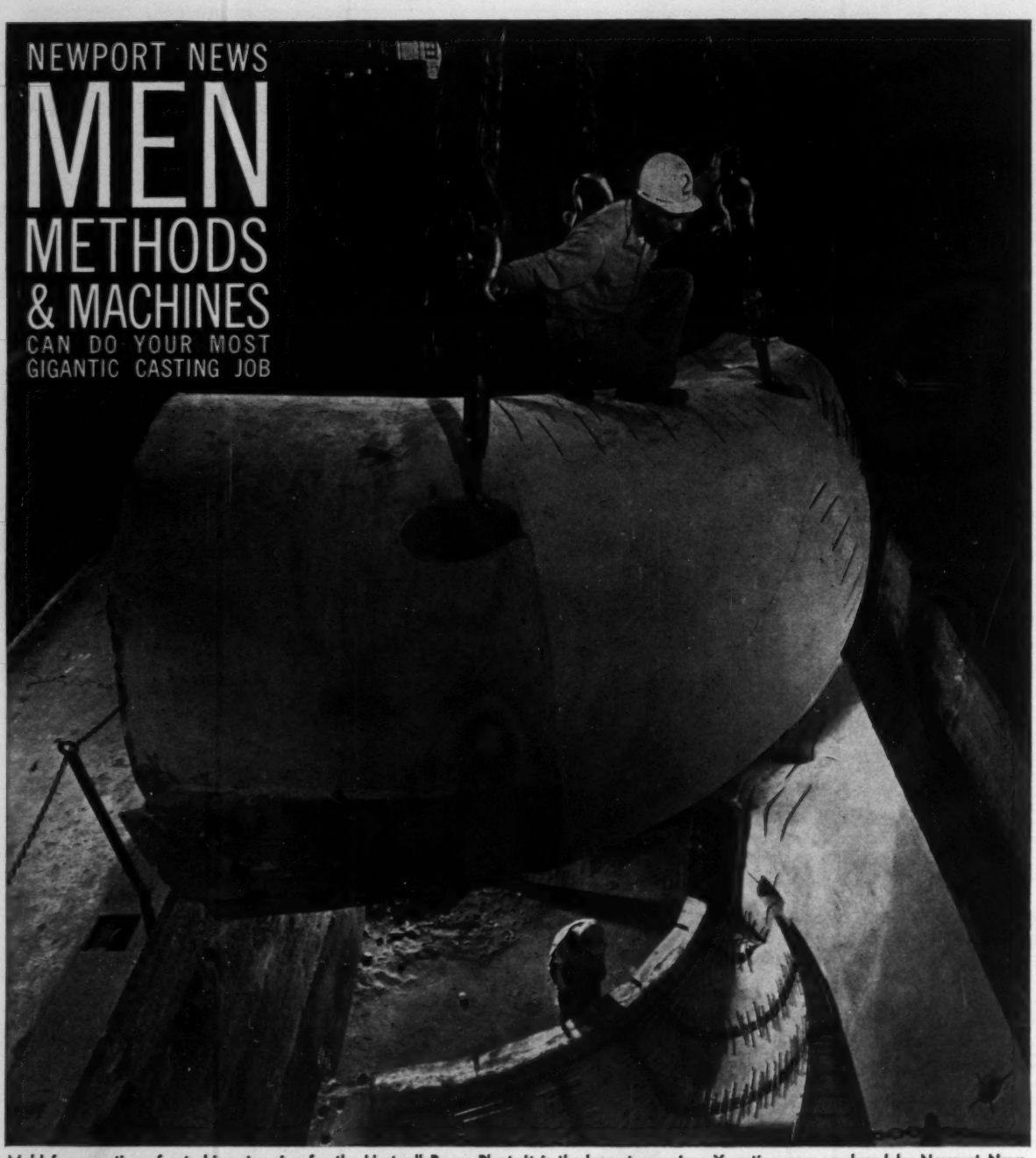
CAN DO YOUR MOST GIGANTIC CASTING JOB



Mold for a section of a turbine stay ring for the Hartwell Power Plant. It is the largest one-piece Y-casting ever produced by Newport News.

It takes all three—men, methods and machines to tackle a job as big as this one! Newport News has completed many of them including six hydraulic turbines for the Niagara Project, four for the Hartwell Power Plant, and many others.

Newport News not only cast this giant unit but also milled it—and built the boring mill that did the work! No challenge is too great.

The secret of its leadership in the fabrication of heavy equipment is its staff of highly trained engineers and technicians, thousands of skilled workmen and 225 acre plant capable of turning out such projects as hydraulic turbines and valves, vacuum or pressure vessels for the petrochemical industry, bridge caissons, wind tunnels, and pulp and paper equipment.

Consult Newport News for preliminary recommendations at no obligation.

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NEWPORT NEWS, VIRGINIA

Harza Hires Clark for Pakistan

Brig. Gen. Allen F. Clark, Jr., who retired last February as commander of the Corps of Engineers' North Pacific Division, has left for West Pakistan to direct Harza Engineering Co.'s share of the massive Indus River Program.

The ten-year, billion-dollar project is nearing the construction stage under terms of an India-Pakistan agreement (ENR Feb. 9, p. 30). Mangla Dam, one of several large dams to be built to harness the Indus River, will be started this year.

General Clark is a 1932 graduate of the U. S. Military Academy and holds a master's degree in civil engineering from Princeton University. As commander of the North Pacific Division since December, 1957, he has directed final preparation of the Corps of Engineers' recent revision of its comprehensive 308 study of the Columbia River Basin. He was district engineer in Philadelphia before moving to Portland.

As managing director for Harza, he will make his office in Lahore, West Pakistan.

In earlier changes at Harza, Franklyn C. Rogers, an associate, was appointed chief civil engineer. Newly appointed associates are: Victor A. Koelzer, assistant head of the planning department; Earl J. Beck, head of the civil engineering departments; and Robert B. Jackson, resident construction engineer on the Wanapum and Priest Rapids developments in the state of Washington.

'Stranger' Gets Highway Post

Minnesota's Gov. Elmer Andersen has named a man described as "a total stranger" to head his state's Department of Highways.

The department's new commissioner is Brig. Gen. James C. Marshall (ret.), of Skaneateles, N. Y. As a Corps of Engineers officer from 1918 to 1947, General Marshall served in France, Germany, Puerto Rico, Panama, New York, Virginia, Washington, Massachusetts, Tennessee and the South Pacific, but not, apparently, in Minnesota. He was born in Plattsburg, Mo.

Governor Andersen said he wanted a man with wide experience who would bring a fresh viewpoint and a nonpartisan approach to department activities. General Marshall succeeds L. P. Zimmerman, who was appointed in 1957 by then Gov. Orville Freeman, now Secretary of Agriculture.

Although seemingly new to Minnesota, General Marshall is no stranger to engineering administration. He organized and commanded the Manhattan District atomic energy project. Some of his other positions have been commandant of the Boston Port of Embarkation, assistant chief of staff for logistics in the South Pacific during World War II, and commandant of the Corps of Engineers research and development laboratories at Fort Belvoir, Va.

After his retirement in 1947 he worked as an engineering consultant in Turkey, Korea and France.

Murphy Follows McGara at Yuba

J. Philip Murphy has been named president of Yuba Consolidated Industries, Inc., following the resignation of John L. McGara, president and chairman of the board of directors for the past four years. Mr. Murphy was also elected to the board of directors.

For over 30 years, Mr. Murphy has headed companies in structural fabrication and erection. One of these was Judson Pacific-Murphy Corp., Emeryville, Calif., which was acquired by the Yuba organization in 1958. He is a civil engineering graduate of St. Mary's College.

Under Mr. Murphy's leadership, Judson Pacific-Murphy constructed many large bridges in the West including the Richmond-San Rafael Bridge Superstructure and the Glen Canyon Bridge. JP-M, when absorbed by Yuba, became Yuba Erectors and is currently building the Martinez-Benecia Bridge in California and has a contract for repair work on the Hood Canal Bridge in Washington.

Yuba now operates 17 divisions engaged in engineering and manufacturing heavy steel products for industrial construction.

In an unrelated move, Michael J. Gordon was appointed vice president and general manager of Yuba International Corp., headquartered in New York. He had been with Etablissements Levivier, a Paris construction company.

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Dodge heavy-duty trucks for 1961 are the toughest, stingiest, workingest trucks we've ever built. They all feature cab forward design that lets you put a bigger body on the same wheelbase. And swing-out fenders that make engine servicing a cinch. The heavy-duty Dodge engine lineup includes both gasoline and diesel models. Six and V8 gasoline engines to 228 hp. Tough Cummins diesels to 220 hp. Frames, clutches, transmissions and axles, job-rated to fit your needs. Heavy-duty Dodge cab forward trucks and tractors run from 28,000 lbs. to 53,000 lbs. GVW, and from 55,000 to 76,800 lbs. GCW—single axle and tandem. From top to bottom Dodge trucks are priced to compete with any truck made.

And one more thing. Our 24-hour-a-day, seven-day-a-week emergency parts system. When you need parts for a Dodge truck, you get them fast. SEE YOUR DODGE DEALER.

DODGE BUILDS TOUGH TRUCKS

TOUGHEN YOUR FLEET WITH DEPENDABLE DODGE TRUCKS

A PRODUCT OF CHRYSLER CORPORATION

ALL-NEW DART PICKUP! First and only full-size truck with compact-economy. Comes with 7½′ or 8′ pickup box. Available with either 140 hp. inclined Dart Power Six or 200 hp. V8 engine. Priced to compete with any other truck you can name.

SILENCE...

Lead at work!

Chalk up one for lead when it comes to a genuine genius for isolating sound. That's because, thickness for thickness, lead is 13 times more effective at blocking sound transmission than the next best commonly used construction material... up to 24 times more effective than some others.

And lead's characteristic density and limpness also make it stack up better pound for pound.

4477

Lead gets an "A" for conduct and cooperation, too. It's tackable, paintable, fireproof and malleable—folding or bending to "dress" even over complicated surfaces. It is applicable to buildings, machinery, transportation equipment and almost every area where sound control is a problem.

LOOK AHEAD WITH LEAD

Technical data and charts prepared by the acoustical consulting firm of Bolt, Beranek and Newman are all contained in this brochure.

For your copy of the new 12-page report, *Improved Sound Barriers Employing Lead*, write to Lead Industries Association, 292 Madison Ave., New York 17, N. Y.

Obituaries

Thomas A. Scott Dies; Co-founder of M-C&S

Thomas A. Scott, 83, one of the founders of the present-day heavy construction, shipbuilding and marine salvage company, Merritt-Chapman & Scott, has died. He had been president and chairman of the board of M-C&S and president of one of its predecessor companies, Thomas A. Scott Co.

He joined his father's company in 1896 and worked successively as a blacksmith's helper, seaman, ship's captain, salvage officer and operations manager. When the company was incorporated in 1903, he was named president.

When the company was merged with Merritt-Chapman in 1922, Mr. Scott became president of the expanded organization. He was made chairman of the board in 1933, and served as honorary chairman from 1951 until 1960.

During both world wars, Mr. Scott served the Navy as an expert on marine salvage. He received the Medal of Merit in 1946 from President Truman for his "outstanding services." In 1949, the Moles Member Award was bestowed on him for his contributions to construction progress.

Charles B. Perini, 50, vice president of the world-wide Perini Corp., founded by his father, Bonfiglio Perini, in Framingham, Mass. Mr. Perini had charge of the firm's equipment and was also vice president of the Canadian subsidiary, Perini Ltd. Last winter, he directed a $15-million project in Cali, Colombia for the company.

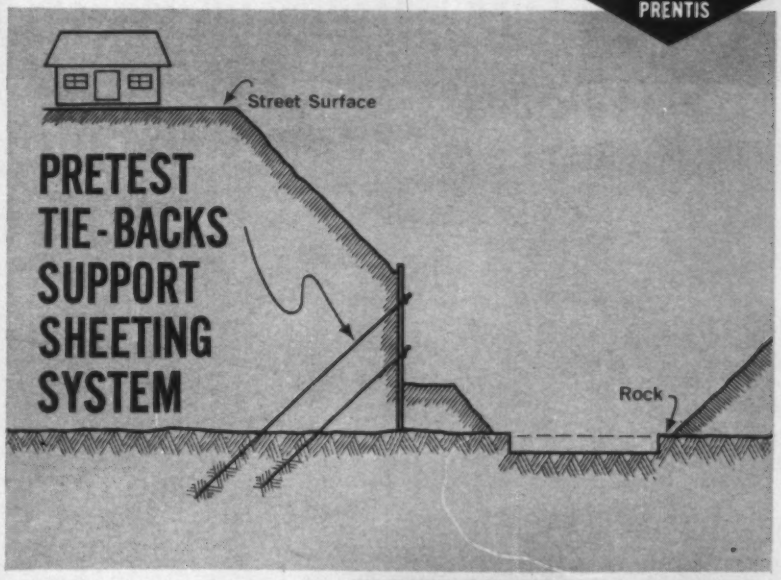
Edward V. Dockweiler, 59, retired rear admiral and chief engineer of Los Angeles Harbor. When World War II broke out, he was in charge of Cavite Shipyard. After the fall of the Philippines, he led guerrilla bands. Later, as a prisoner of war, he secretly directed sabotage of a large Japanese shipyard.

Albert Givan, 84, promoter and first secretary of California's state board of registration for civil and professional engineers. He was chief engineer and general manager of the Sacramento Municipal Utility District from its organization in 1923 until 1938, when he became a consulting engineer.

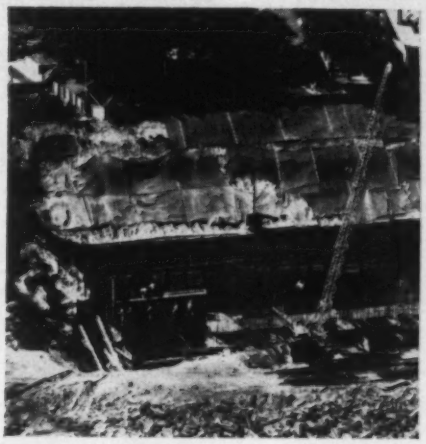
Yosuke W. Nakano, 73, chief engineer since 1918 of Wark & Co., Philadelphia constructors. An authority on structural cement, he took part in building many Philadelphia landmarks, including the Architects' Building, Lankenau Hospital and the Sun Oil Building.

Owner: City of Milwaukee
General Contractor: Bauer Construction Co., Milwaukee, Wis.
Engineers: Black & Veatch, Kansas City, Mo

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS



NOVEL PLAN ELIMINATES NEED OF RAKER BRACING



170' x 65' lot is 80' below street level.

The above-pictured system of horizontal wood sheeting and soldier beams, extending 30 ft. to subgrade, dependably retained a heavy earth bank—without the customary bracing of raker beams.

An unusual method (on which patent application has been made) employed pretest wire tie-backs, on the exterior side of the sheeting, to provide the necessary support. Two tensioned wires were fastened to each soldier beam and, on the other end, were grouted into sockets in the bedrock.

Besides proving dependable and economical, the new method—one of many pioneered by Spencer, White & Prentis—has the further advantage of leaving the excavation free and clear for the contractor's operations.

Catalog on request

Spencer, White & Prentis INC.

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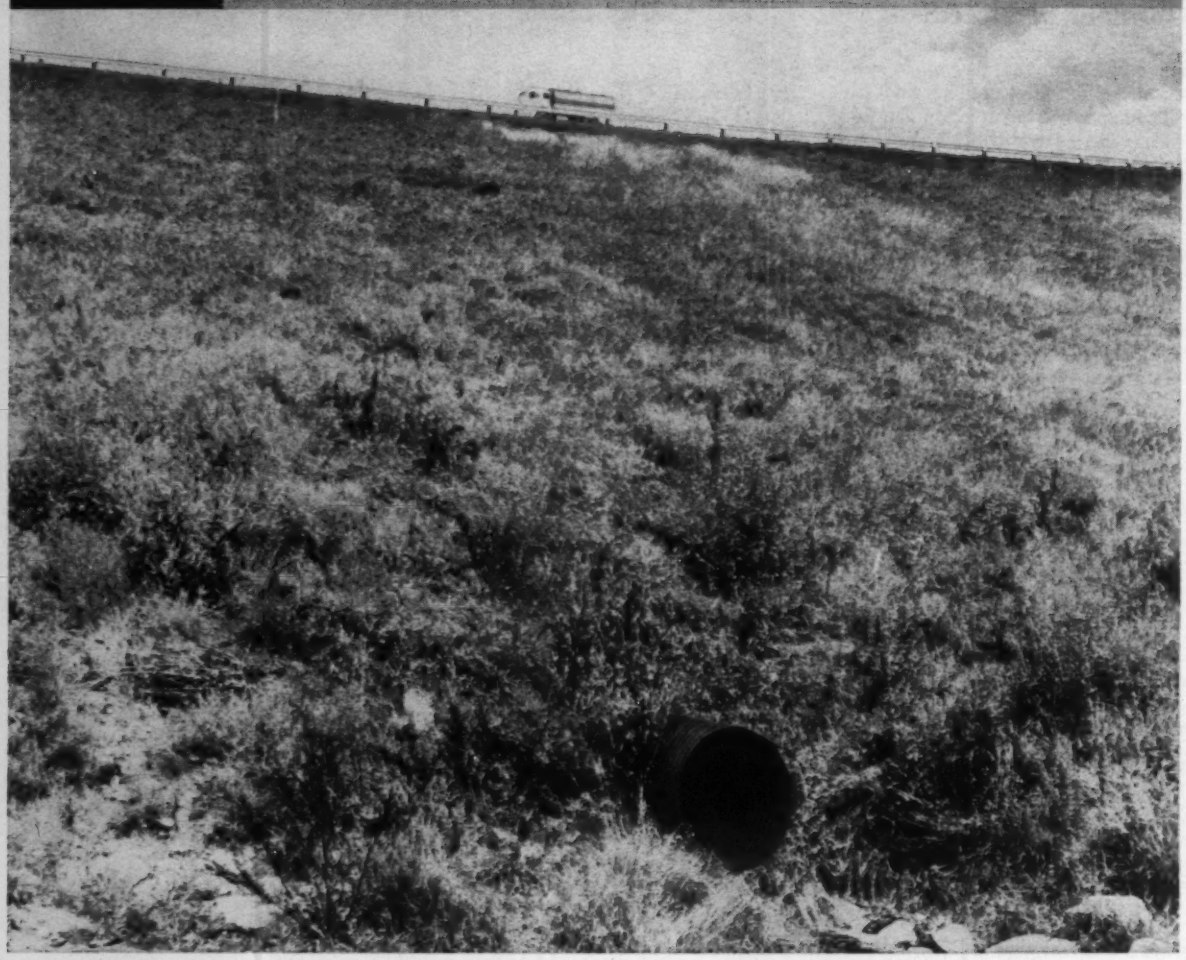
DETROIT: 2033 PARK AVE. • CHICAGO: 221 NORTH LaSALLE ST. • WASHINGTON, D. C.: TOWER BLDG.

CORRUGATED METAL CULVERT PIPE BY WHEELING

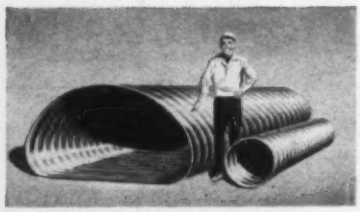


STANDS UP UNDER 100 FEET OF FILL!

Amazing as it seems, this 8-gauge, 54" Wheeling Corrugated Metal Culvert Pipe is under 100 feet of fill . . . and can take decades of abuse!

Unlike heavy, rigid pipe, flexible Wheeling Culvert Pipe adjusts to changing pressures caused by shifting fill . . . uses the surrounding earth to help it carry the unusually heavy load of fill shown here.

Supplied in copper-bearing steel or copper-bearing pure iron . . . plain galvanized or bituminous-coated after galvanizing . . . with or without paved invert . . . Wheeling Corrugated Metal Culvert Pipe and Pipe Arch come in a wide range of gauges and diameters. Ask your Wheeling man for full details. Or write Wheeling Corrugating Company, Wheeling, W. Va.



Use Wheeling Pipe Arch (left) where headroom is limited; Wheeling Small-Diameter Culvert Pipe (right) for most roadside drainage.

WHEELING CORRUGATING COMPANY · IT'S WHEELING STEEL!

Warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Martins Ferry, Minneapolis, New York, Philadelphia, Richmond, St. Louis.* Sales Offices: *Atlanta, Houston, New Orleans.*

Unit Prices

New Jersey School Construction Costs

Department of Education State of New Jersey
Division of Business and Finance, Bureau of School Building Services

New Elementary Schools—by months

Year	Mo.	No.	Construction Costs $ per pupil (min-aver-max)	$ per sf (min-aver-max)	$ per cf (min-aver-max)	ENR Bldg Cost Index (1913 = 100)
July 1, '58–June 30, '59		25	550– 967–1,658	12.10–17.14–30.69	0.90–1.34–2.56	524–552
July 1, '59–June 30, '60		30	478– 980–1,730	12.49–16.34–22.04	1.02–1.28–1.75	552–562
July 1, '58–June 30, '59						
1958	Aug	1	1,658	22.87	1.83	526
	Sep	3	550– 826–1,050	13.84–17.27–20.85	1.14–1.30–1.55	535
	Oct	4	661– 904–1,002	13.53–17.21–18.44	1.06–1.50–1.69	537
	Nov	4	677– 943–1,371	12.10–17.39–20.02	1.14–1.43–1.60	535
	Dec	2	694– 743–1,486	12.70–14.27–15.84	0.99–1.03–1.08	535
1959	Jan	2	1,286	17.31	1.49	536
	Feb	3	575– 908–1,090	13.08–15.31–17.04	0.90–1.03–1.17	537
	Mar	1	903	14.17	1.24	540
	Apr	2	926–1,128–1,329	15.11–15.79–16.47	1.02–1.03–1.05	543
	May	3	773– 938–1,105	14.65–20.10–30.69	1.08–1.65–2.56	544
	Jun	2	621– 847–1,693	13.50–16.28–19.06	1.18–1.23–1.28	548
July 1, '59–June 30, '60						
1959	Jul	4	699–1,103–1,403	13.28–18.24–22.04	1.02–1.26–1.48	552
	Sep	2	971–1,037–1,103	15.97–16.70–17.43	1.39–1.50–1.62	556
	Oct.	1	603	12.86	1.06	555
	Nov	6	751–1,023–1,318	13.61–17.42–21.08	1.00–1.37–1.75	554
	Dec	2	963–1,347–1,730	15.00–12.01–19.02	1.18–1.30–1.41	553
1960	Jan	3	825– 878– 910	14.73–16.35–18.58	1.09–1.24–1.43	554
	Feb	4	762–1,050–1,255	14.30–15.16–17.14	1.06–1.18–1.29	555
	Apr	4	602– 707– 858	12.49–14.00–16.66	1.04–1.24–1.15	556
	May	3	478– 938–1,566	16.25–16.28–16.31	1.02–1.25–1.55	560
	Jun	1	994	17.86	1.40	561

New Secondary Schools—by grades

July 1, '58–June 30, '59

Grade	Date	Pupil Capacity	Gross Area (sf)	Sf/pupil	Construction Costs $ per pupil	$ per sf	$ per cf	ENR Bldg Cost Index (1913 = 100)
7–9	Aug '58	800	74,750	93.4	1,523	16.30	1.24	526
	Sep '58	971	94,766	97.6	1,507	15.45	1.14	535
	Nov '58	980	91,000	92.9	1,367	14.72	1.12	535
	May '59	986	90,800	92.1	1,478	16.05	1.09	544
	May '59	300	26,000	86.7	1,516	17.49	1.40	544
	May '59	760	74,174	97.6	1,597	16.37	1.21	544
7–12	Nov '58	642	74,564	116.1	1,496	12.88	0.93	535
	Mar '59	750	80,000	106.7	1,374	12.88	0.86	540
	May '59	730	74,627	102.2	1,468	14.36	1.06	544
9–12	Jul '58	691	75,877	109.8	1,502	13.68	0.97	524
	Jan '59	900	113,673	126.3	2,198	17.79	1.17	536
	Apr '59	733	102,400	139.7	2,956	21.16	1.33	543

July 1, '59–June 30, '60

Grade	Date	Pupil Capacity	Gross Area (sf)	Sf/pupil	Construction Costs $ per pupil	$ per sf	$ per cf	ENR Bldg Cost Index (1913 = 100)
7–9	Jul '59	745	88,200	118.4	1,913	16.15	1.15	552
	Oct '59	946	105,000	111.0	2,222	20.02		555
7–10	Jan '60	1,200	112,500	93.8	1,297	13.83	1.06	554
	Jan '60	1,200	112,500	93.8	1,397	13.83	1.06	554
7–12	Jul '59	1,275	117,040	91.8	1,400	15.25	1.10	552
	Jul '59	1,156	115,600	100.0	1,424	14.24	0.98	552
	Aug '59	1,000	103,000	103.0	1,447	14.05	0.95	554
	Aug '59	1,060	85,000	80.2	1,252	12.94	0.89	554
	Nov '59	937	83,000	88.6	1,317	14.86	0.98	554
	Feb '60	1,500	186,700	124.5	2,008	16.14	1.05	555
9–12	Jul '59	801	94,925	118.5	2,006	16.93	1.20	552
	Jul '59	700	78,831	112.6	1,374	12.20	0.88	552
	Aug '59	1,200	120,000	100.0	1,651	16.51	1.32	554
	Aug '59	934	85,000	91.0	1,403	15.42	1.04	554
	Nov '59	954	88,000	92.2	1,403	15.21	1.11	554
	Mar '60	1,490	185,149	124.3	2,329	18.74	1.28	555
	Jun '60	760	80,591	106.0	1,575	14.85	1.09	561
	Jun '60	733	111,780	152.5	2,616	17.15	1.08	561
10–12	Jun '59	2,690	273,300	101.6	1,830	18.02	1.30	561

While construction costs per pupil rose for both elementary and secondary New Jersey schools in fiscal '60, costs per square and cubic foot declined.

The average cost per pupil for elementary schools in the July 1, '59-June 30, '60 period increased 1.3% over the '59 average, moving up from $967 to $980. Cost per square foot, however, dropped 4.9% from the '59 average of $17.14 to $16.34 in '60. Similarly, cubic foot costs slid down from $1.34 to $1.28, a 4.7% decrease.

Secondary school costs increased 0.7% per pupil in fiscal '60, an increase of $12.00 over the '59 average, $1,665. Per pupil costs ranged from $1,367 to $2,956 for twelve schools reported in fiscal '59 while nineteen secondary schools in '60 ranged from $1,252 to $2,616. Prices per square and cubic foot, dropped 1.3% and 4.6% respectively. A cubic foot of construction in fiscal '59 averaged $1.13 and ranged from $0.86 to $1.40; in '60 it averaged $1.08 and ranged from $0.88 to $1.32.

STOW
TAMPER TAMPS
4500 SQ. FT.
PER HOUR

The Stow T-18A Tamper packs a profit punch . . . combines vibration with impact to work faster, more efficiently. Compacts granular soil in trenching, backfill, sub-bases, foundations—even black-topping and pavement patching! Here's why:

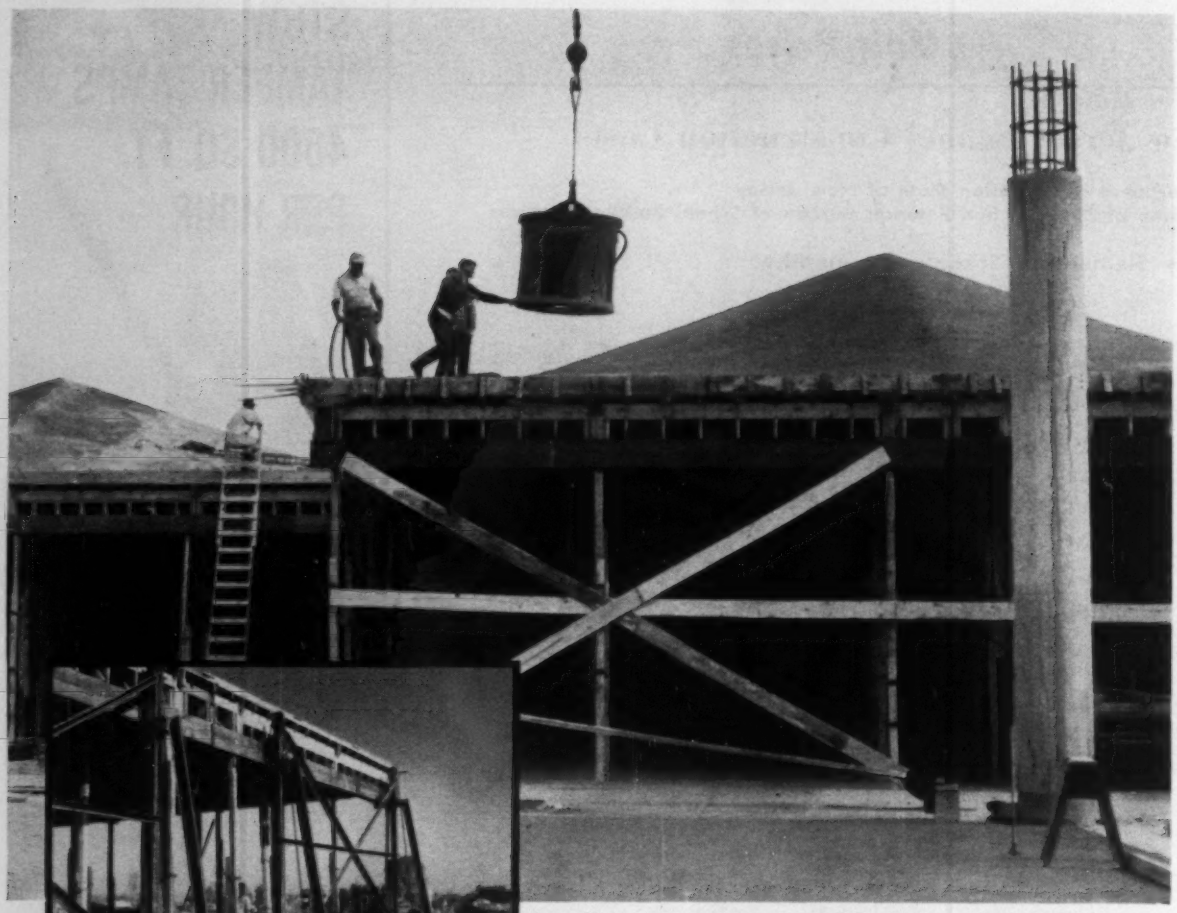
- **WALLOP:** engineered to coordinate engine and vibrator strokes for a 2200 lb. impact—2400 times a minute!
- **SPEED:** self-propelled at up to 50 ft. per minute — 4500 sq. ft. per hour!
- **TROUBLE-FREE:** easy-starting Wisconsin engine has fuel pump that operates at any angle!
- **RUGGED DESIGN:** heavy-duty components, plus gas tank mounting under the engine for less wear and tear!

Contact your Stow distributor for an on-the-job demonstration, or mail this coupon for Tamper Bulletin #610-10

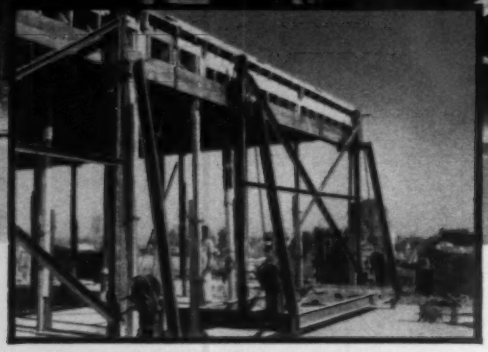
STOW MANUFACTURING CO.
Dept. M-2, 19 Shear St.
Binghamton, New York

Please send me Tamper Bulletin 610-10.

Name .....
Title .....
Company .....
Street .....
City ..... **State** .....



Placing concrete for roof of G.E.M. Southway Store, St. Louis, Mo. Architect: Manuel Morris, Kansas City, Mo. Structural Engineer: Dutton Biggs, Kansas City, Mo. General Contractor: Millstone Construction, Inc., St. Louis, Mo.



Special lifting device raising formwork

Only 6 weeks needed to roof 120,000 sq. ft. store with concrete hyperbolic paraboloids

In the building of the new G.E.M. Southway Department Store, St. Louis, doors opened for business just 85 working days after award of the construction contract. A major reason for the record-time completion of this one-story, one-area shopping center lay in the concrete shell roof.

The roof is composed of 50 reinforced concrete hyperbolic paraboloids. Each of these umbrella-shaped shells is supported by a 24-inch diameter concrete column. Through the efficient re-use of only 5 sets of forms, sizable savings in both time and labor were effected. All 50 shells, each 47½ ft. square and 2½ inches thick, were completed within 6 weeks.

Construction of the hyperbolic paraboloids was done in rows. Thus, masonry, plastering and other trades began work as soon as a row was completed.

This is another good example of the way improved techniques have made shell roof designs economically practical for structures of all types and sizes. No wonder structurally strong concrete is the choice of more and more engineers and builders! Write for technical facts. (Free in U.S. and Canada only.)

PORTLAND CEMENT ASSOCIATION
Dept. A5-13, 33 W. Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of concrete

FOR STRUCTURES... MODERN concrete

Materials Prices

Monthly Market Quotations by ENR Field Reporters

LUMBER, TIMBER, PLYWOOD—*Southern Pine*, bold face, *Douglas Fir*, italic

Item	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
LUMBER, TIMBER																							
1x6s4s	Mbf.	80.00	90.00	90.00	.....	106.00	91.00	103.00	95.00	.....	106.00	105.00	.....	110.00	89.00	95.00b	95.00	107.00	106.00	.....	.....	83.00d	88.00d
		.....	*104.00*	*104.00*	.....	*101.00*	*92.00*	*104.00*	.....	.....	*104.00*	*105.00*	*90.00*	*106.00*	*98.00*	*103.75*	*104.00*	*104.00*	*96.00*	*88.00*	*80.00*	.....	.....
1x8s4s	"	85.00	95.00	92.00	.....	108.00	93.00	105.00	99.00	.....	108.00	105.00	.....	107.50	89.00	100.00b	105.00	107.00	108.00	.....	.....	89.00d	92.00d
		.....	*94.00*	*94.00*	*100.00*	*91.00*	*94.00*	*94.00*	.....	.....	*108.00*	*105.00*	*90.00*	*107.50*	*88.00*	*93.75*	*94.00*	*94.00*	*86.00*	*88.00*	*65.00*	.....	.....
2x4s4s	"	90.00	90.00	89.00	90.00b	102.00	98.00	107.00	100.00	.....	102.00	100.00	.....	.....	90.00	98.00b	95.00	95.00	102.00	.....	.....	83.00d	85.00d
		110.00	*113.00*	*113.00*	*105.00*	*110.00*	*110.00*	*113.00*	.....	*108.00*	*109.00*	*105.00*	*100.00*	*106.00*	*107.00*	*112.75*	*113.00*	*113.00*	*106.00*	*94.00*	*74.00*	.....	*100.00*
2x6s4s	"	85.00	90.00	91.00	90.00b	102.00	98.00	103.00	103.00	.....	102.00	105.00	.....	.....	95.00	98.00b	105.00	100.00	102.00	.....	.....	83.00d	82.00d
		110.00	*113.00*	*113.00*	*105.00*	*110.00*	*110.00*	*113.00*	.....	*108.00*	*109.00*	*110.00*	*100.00*	*107.50*	*107.00*	*112.75*	*113.00*	*113.00*	*106.00*	*94.00*	*74.00*	.....	*100.00*
2x8s4s	"	85.00	90.00	96.00	90.00b	112.00	98.00	107.00	103.00	.....	112.00	.....	.....	.....	95.00	98.00b	110.00	100.00	115.00	.....	.....	99.00d	88.00d
		110.00	*112.00*	*112.00*	*105.00*	*119.00*	*110.00*	*112.00*	.....	*108.00*	*118.50*	.....	*100.00*	*111.75*	*106.00*	*112.75*	*113.00*	*113.00*	*105.00*	*94.00*	*74.00*	.....	*103.00*
2x10s4s	"	90.00	95.00	102.00	112.00b	116.00	105.00	115.00	106.00	.....	116.00	115.00	.....	.....	98.00	101.00b	110.00	105.00	116.00	.....	.....	125.00d	89.00d
		110.00	*116.00*	*116.00*	*116.00*	*113.00*	*115.00*	*116.00*	.....	*112.00*	*126.00*	*115.00*	*100.00*	*111.75*	*110.00*	*114.75*	*115.00*	*115.00*	*108.00*	*94.00*	*75.00*	.....	*104.00*
3x12Rgh	"	.....	110.00	121.00	.....	123.00	112.50	.....	135.00	.....	.....	.....	.....	.....	126.00	.....	125.00	115.00	.....	.....	.....	.....	100.00d
		.....	*140.00*	*131.00*	*138.00*	*128.00*	*145.00*	*150.00*	.....	.....	*177.00*	*189.00*	*135.00*	*135.00*	*126.50*	*116.00*	*169.00*	*142.50*	*120.00*	*178.00*	*102.00*	*87.50*	.....	*118.00*
6x12Rgh	"	.....	160.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
		.....	*170.00*	*136.00*	*140.00*	*128.00*	*145.00*	*150.00*	.....	.....	*197.00*	*189.00*	*180.00*	*140.00*	*116.50*	*116.00*	*169.00*	*210.00*	*120.00*	*178.00*	*120.00*	*91.00*	.....	*118.00*
12x12Rgh	"	135.00	120.00	178.00	.....	151.00	155.00	.....	160.00	.....	.....	.....	.....	.....	155.00	.....	.....	.....	.....	.....	.....	120.00d	.....
		.....	*150.00*	*186.00*	*160.00*	*128.00*	*155.00*	*150.00*	.....	.....	*197.00*	*189.00*	*180.00*	*140.00*	*113.50*	*113.00*	*169.00*	*210.00*	*125.00*	*178.00*	*122.00*	*91.00*	.....	*130.00*
FIR PLYWOOD (a)																							
¼" Int. Plyscored, CD gr.	Msf.	142.00	132.00	110.47	109.00	132.00	119.65	127.00	123.00	146.50	120.00	135.00	101.30	117.60	133.00	133.20	130.00	131.75	128.00	111.00	108.00	.....	142.00
¾" Exterior Ptyform, BB gr.	"	180.00	197.50	214.71	191.80	225.00	200.95	220.15	210.00	233.00	210.00	215.00	165.70	208.05	220.00	220.60	212.00	218.00	211.00	93.00	176.00	.....	179.40

Fir-Random length, 75% construction grade, 25% standard grade, 30,000 bf delivered by wholesale dealer, green stock, grademarked. Pine-Random length, #2 common and better, Southern Pine Inspection Bureau grademarked, 30,000 bf delivered by wholesale dealer. •a Certificated stock, carlots, fob city. •b Hemlock, 75% construction grade, 25% standard grade. •c Kiln-dried stock. •d Spruce.

WINDOW GLASS, Discounts from Jobber's list, Feb. 1, 1950 (a) sales tax extra—single or double strength

	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
A quality	78%	74%b	82%c	70+10%eg	70%	72%	72-2-10%	70%	73%-10	72-10-10%	76-10-10%	$12.88/17.32	70-10%	76%d	79%	80%	72%	74-10-10%ef	60%	$8.85/11.55di	40-10-5%a	$6.49/9.50
B quality	80%d	74%b	83%c	70+10%eg	70%	72%	72-2-10%	70%	73%-10	72-10-10%	76-10-10%	$10.45/14.13	70-10%	76%d	79%	80%	72%	74-10-10%ef	73%	6.41/8.07di	40-10-5%a	5.90/8.77

Glass: •a Jobber's list price per box, 14 x 20, ss. $42.75 for A quality, $37.50 for B quality; 14 x 20, ds. $60.00 for A quality, $52.75 for B quality. •b sales tax extra. •c 77% for single strength. •d From 6/15/52 list. •e 77% for double strength. •f Single strength; double strength, 83%. •g From 8/1/58 list. •h ss/ds, 40-in. •i 20 boxes min. •l eff. 10/15/58. •m less 2% disc, 10 days. •n less 1% disc, 10 days. •o add 2% sales tax. •p less 1% for cash. •q less 2% for cash.

EXPLOSIVES per lb, 40% Ammonia Gelatin in 50 lb cases delivered in 500 lb lots (non-seismograph grades)

Urban Areas	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis	San Francisco	Seattle	Montreal	Toronto
	$0.2595	$0.2795	$0.2595	$0.2795	$0.2795	$0.2595	$0.2595	$0.2870	$0.2795	$0.2795	$0.2795	$0.2795	$0.2795	$0.2795	$0.5130g	$0.2795	$0.2595	$0.2795	$0.2795	$0.2795	$23.20h	.....

Explosives: Cartridges of 1¼" diameter or over, in standard lengths. •g deliveries in certain areas must be by truck or by truck and boat, requiring extra charge. •h fob Beloeil (near Montreal), per 100 lb., lots under 2000#, wood cases, forcite, 40%. Forcite 60%, $24.30 in fiber cases; forcite 40%, $24.05; forcite 60%, $25.80. Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Non-Urban Areas	C/L 30,000 lb. lots	10,000 lb. lots	2,000 lb. lots	200 lb. lots
Group 1*	$0.21.95	$0.22.95	$0.26.45	$0.27.95
Group 2†	.22.70	.23.70	.27.20	.28.70

*All areas except those in Group 2 and N.J. cities of Bayonne, Hoboken, Jersey City, No. Bergen, Union City and Weehawken † Florida counties of Manatee, Hardee, Highlands, Okeechobee, St. Lucie and south thereof; Idaho; Maine; Montana; New Mexico counties of Catron, Socorro, Lincoln, De Baca, Roosevelt and south thereof; Texas counties of Bailey, Lamb, Hale, Floyd, Motley, Cottle, Hardeman, Foard, Knox, Haskell, Jones, Taylor, Coleman, McCulloch, San Saba, Burnet, Williamson, Milan Robertson, Leon, Houston, Angelina, Nacogdoches, Shelby and south thereof.

PILES prices per linear foot, fob cars, New York

Dimensions	Points	Length	By Rail Pine*§	By Rail Fir	Dimensions	Points	Length	By Rail Pine*§	By Rail Fir
12" at butt	6-in.	30 to 39-ft.	$0.42a	....	14"—2-ft. from butt	6-in.	65 to 69-ft.	1.21	....
12"—2-ft. from butt	6-in.	40 to 44-ft.	.91	....	14"—2-ft. from butt	6-in.	70 to 74-ft.	1.34	$1.40
12"—2-ft. from butt	6-in.	45 to 49-ft.	.97	....	14"—2-ft. from butt	6-in.	75 to 79-ft.	1.41	1.40
12"—2-ft. from butt	6-in.	50 to 54-ft.	1.01	....	14"—2-ft. from butt	5-in.	80 to 84-ft.	1.54	1.45
12"—2-ft. from butt	6-in.	55 to 59-ft.	1.07	....	14"—2-ft. from butt	5-in.	85 to 89-ft.	1.67	1.54

* Pine piling over 90 feet available only in limited quantities. § ASTM Class B •a, trucked in from N. J.
Prices per linear foot, fir and pine, rough peeled, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine under fifty feet based on freight from mid/South, over fifty feet on freight from deep south.

RAILWAY TIES

Prices f.o.b. per tie box carload lots:		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	2.85-3.00	4.00a-4.10	3.90	4.75-5.00
New York	Mixed Hardwood	3.45	5.10	4.30	6.50
	Mixed Oak	3.55	5.20	4.40	6.60
Philadelphia	Mixed Oak	3.80	3.97	4.37	4.57
St. Louis	Mixed Oak	2.65	3.40a	3.00b	4.00-4.10nh
San Francisco	Douglas Fir	2.32ef	3.75ef	2.70ef	3.80ca

Tr.—Treated; Untr.—Untreated. •a Creosoted. •c Empty cell. •e Green •f f.o.b. cars. •g 7 x 9 x 8'6" * Add 75¢/tie freight charge to Birmingham. •h 7" x 9" x 8½. •l Mixed Hardwood

CHEMICALS Water, sewage treatment, road work, carlots, f.o.b. works

Chlorine cylinders, liquid, per lb. freight allowed, N. Y. State	$ .11	Soda ash, 58%, in paper bags, per 100 lb. dense	1.90
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, ton	32.00	Sulphate of aluminum, commercial, in 100-lb. bags	2.05
Silicate of soda, 5- deg., in drums, per 100 lb.	2.65	Sulphate of copper in bags, 99% per 100 lb., reg., 25.2% copper content	13.00

See following ENR issues for OTHER PRICES:

- Clay Products, Lime, Plaster, Paint Roofing: Last, Mar. 30; Next, Apr. 27.
- Wage Rates, Building Board, Lath, Insulation: Last, Mar. 30; Next, Apr. 27.
- Cement Aggregate, Ready-Mixed Concrete; Asphalt; Last, Apr. 6; Next, May 4.
- Iron & Steel Products, Pipe; Last, Apr. 13; Next, May 11.

Bids Asked—Low Bidders—Contracts Awarded—

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲ **Vappi & Co., Inc.**, 240 Sidney St., Cambridge, Mass., CA **$1,987,800**, est. $2,000,000, MPA-1.009 HANGAR, Logan Airport, EAST BOSTON, MASS. Massachusetts Port Auth., 141 Milk St., Boston, Mass. Trans-World Airlines, lessee. BA 2/28. CD 3/2/61, under LB.

BUILDINGS—LB & CA

▲ **George L. Hickey, Inc.**, 13 Spring St., Stamford, Conn., CA **$2,079,890**, Western JUNIOR HIGH SCHOOL, GREENWICH, CONN. Town, Dpt. P. Wks., Town Hall, Greenwich, Conn. BA 3/27/61. CD 4/3/61, under LB.

▲ **A. Rosenber Building & Construction**, 142 Orange Ave., West Haven, Conn., CA **$2,000,000**, 376 unit, Garden APARTMENTS, Falcon Park, Westfield Rd. MERIDEN, CONN., Morris Gordon & Lawrence Danaher, 341½ East Main St., Meriden, Conn. CA 4/8/61. CD 3/16/61.

▲ **Alan E. Hanbury**, 168 Kitts Lane, Newington, Conn., Owner Builds, **$3,740,000**, 170 HOUSES, Brightmoor, Southeastern Section, NEWINGTON, CONN.

▲ **F. D. Rich Co.**, 550 Summer St., Stamford, Conn., CA **$3,343,000**, HOSPITAL ADDN., Stevens St., NORWALK, CONN. Norwalk Hospital, 24 Stevens St., Norwalk, Conn. BA 3/10/61, CA 4/10/61. CD 4/4/61, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **N. Y., New Castle**—BA 4/25—International Business Machines Corp., 590 Madison Ave., New York, Zone 22, 250,000 sq. ft. OFFICE, Wenga Farm for General Products and Data Systems, IBM Divs. $5,000,000. Skidmore, Owings, Merrill, 425 Park Ave., New York, Zone 22, archts. Alexander Potter Assocs., 50 Church St., New York, Zone 7, consult. engrs. Slocum & Fuller, 207 E. 32 St., New York, Zone 16, mech. engrs. Severud Elstad Krueger, 415 Lexington Ave., New York, Zone 17, struct. engr. CD 8/3/60.

▲ **N. Y., Rochester**—BA 5/1—Monroe County Water Auth., 339 East Ave., crosstown TRANSMISSION MAIN. $1,500,000. Plans deposit $25. Metcalf & Eddy, Statler Bldg., Boston, Mass., engrs.

BUILDINGS—BA

▲ **N. Y., Clarence**—BA 5/1—Town, Goodrich Rd., Bd. Clk., 9625 Main St., Wallenberg ELEMENTARY SCHOOL. $1,300,000. Plans deposit $35. Kideney, Smith & Fitzgerald, 220 Delaware Ave., Buffalo, Zone 2, archts. CD 1/30/61.

▲ **N. J., New Brunswick**—BA 5/9—Rutgers University, Queens Bldg., College Ave., ARTS and SCIENCE CLASSROOM BLDG., campus. $1,500,000. Plans deposit $25. Diehl & Stein, 40 Witherspoon St., Princeton, archts. CD 12/14/59.

BUILDINGS—SLC

▲ **N. Y., Ithaca**—Cornell University, Dpt. Bldgs. & Properties, soon lets contract Bard Hall METALLURGY LABORATORY ADDN. $1,500,000. Shreve Lamb & Harmon Assocs., 11 E. 44 St., New York, N. Y., archts. Seelye Stevenson Value & Knecht, 101 Park Ave., New York, N. Y., engrs.; Women's ATHLETIC BLDG., $1,500,000. Mittlebusher & Tourtelot, 36 S. State St., Chicago, Ill., archts.

▲ **Pa., Phila.** — St. Christopher's Hospital, 2600 N. Lawrence St., soon lets contract IN-PATIENT HOSPITAL, $2,962,639. Extended date. Martin Stewart & Noble, and Robert Allan Class, 117 S. 17th St., archts. Allabach & Rennis, 16 S. Broad St., engrs. CD 3/29/61.

HEAVY CONSTRUCTION—LB & CA

▲† **Colonial Constr. Co. Ltd.**, P.O. Box 341, St. John's, Newfoundland, CA **$1,374,000**, 1 story, 36,500 sq. ft. Dependent HIGH SCHOOL; 1 story, 46 x 78 ft, CHAPEL, EDUCATIONAL WING; 1 story, 60 x 144 ft. BASE OPERATIONS; 1 story, 40 x 42 ft. RAPCON CENTER ADDN., Ernest Harmon Air Force Base, ENG-30-347-61-20, ST. JOHN'S NEWFOUNDLAND. U. S. Eng., 346 Broadway, New York 13, N. Y., U. S. A. BA 3/9, CA 4/6. CD 3/14/61, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, ROAD,

D. A. Kessler Constr. Co., 124 E. Ave., Mt. Carmel, Pa., CA **$2,298,170**, 11,900 ft. divided hy. RC 24 ft. wide each side earth median, 7 bridges, Interstate Sec. of Pen-Can Hy., L. R. 1002(3), Monroe Co. BA 3/17/61. CD 4/20/61, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, Bids opened 4/7, ROADS,

Pa.—**New Enterprise Stone & Lime Co., Inc.**, New Enterprise, Pa., LB **$1,685,153**, 19,466 ft. divided hy., one 24 ft. lane rein.-con., 1 24 ft. lane overlay cr. agg. and bit. surf., 3 bridges, Interstate T. R. 126, Fulton Co.; LB **$101,132**, cr. agg. base with bit. surf. 18 ft. wide and a bridge with an alternate superstructure, L. R. 05094(2), Bedford Co.;

Pa.—**Putnam & Greene, Inc.**, P.O. Box 2082, Sta. A, Fort Wayne, Ind., LB **$386,134**, 13806 ft. cr. agg. base with bit. surf. 20 ft. wide; 2 bridges, LR. 24016(1) and 24001(1), Elk Co. CD 3/15/61.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, ROAD,

Latrobe Rd. Constr. Inc., P.O. Box 150, Latrobe, Pa., CA **$2,987,190**, 34,254 ft. separated hy. RCC 24 ft. wide each side divisor; two bridges, T. R. 126, Interstate, Fulton Co. BA 3/17/61. CD 3/22/61, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 Norh Office Bldg., Harrisburg, BRIDGES,

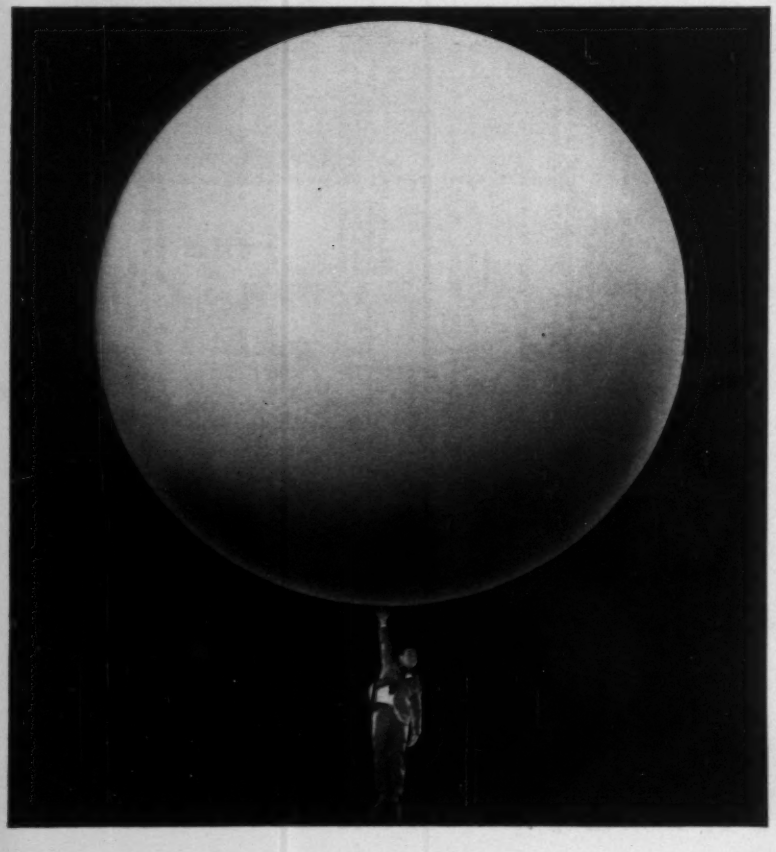
The Lathrop Co., Box 772, 1510 Montcalm, Toledo, O., CA **$3,628,381**, approach spans and ramps for Fort Duquesne Bridge, work on superstructure, sidewalk, concrete decks, etc., 1,083 ft. Allegheny Co., CA **$1,842,336**, 1172 ft. con. of the Point Park Portal consisting of a 182 ft. span rein.-con. arch bridge, L. R. 246(1), T. R. 22-30, Allegheny Co, BA 3/3/61. CD 3/8/61, under LB.

▲† **U. S. Eng.**, 2635 Abbottsford Rd., Phila, Pa., cancelled bids to have been opened Mar. 28, LEVEES, FLOODWALLS, and PUMPING STATION, Lehigh River, ENG-36-109-61-17, PENNSYLVANIA. **$4,000,000**. CD 3/16/61.

BUILDINGS—LB & CA

▲ **Irons & Reynolds, Inc.**, 420 Lexington Ave., New York 17, N. Y., LB Est. **$2,000,000**, 6 story HOSPITAL ADDN., BRONXVILLE, N. Y. Lawrence Hospital, 55 Palmer Ave., Bronxville, N. Y. BA 12/1. CD 11/23/60.

▲ **B.A.W. Constr. Co.**, 84 Colorado Ave., Buffalo, N. Y., LB **$2,984,977** (4 bidders), STUDENT UNION, BUFFALO, N. Y. University of Buffalo, Main St., Buffalo, N. Y. BA 4/6. CD 3/15/61.



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▲ **Perlbinder Realty Corp.**, 19 W. 44 St., New York 36, N. Y., Owner Builds, **$4,000,000**, 19 story, 278 unit APARTMENT, east side 2 Ave. between E. 70 and E. 71 Sts., NEW YORK, N. Y. H. I. Feldman, 415 Lexington Ave., New York 17, N. Y., archt.

▲ **Stanley R. Broff**, 120 Central Park S., New York 19, N. Y., CA Est. **$1,500,000**, 14 story 125 unit APARTMENT, 331-337 E. 75 St., NEW YORK, N.Y. Regent Properties, Inc., 400 Madison Ave., New York 17, N. Y. H. I. Feldman, 415 Lexington Ave., New York 17, N. Y., archt.

▲ **Cauldwell-Wingate Co.**, 101 Park Ave., New York 17, N. Y., CA Est. **$3,404,000**, 22 story, 169 unit APARTMENT, parking lot, 1-11 Fairview Ave., NEW YORK, N. Y. Inwood Tower, Inc., 1860 Broadway, New York 23, N. Y. CD 3/15/61.

▲ **Lesta Constr. Corp.**, 4049 Laconia Ave., New York 66, N. Y., CA Est. **$2,234,000**, 12 story, 22,900 sq. ft., 108 unit Bronxwood TOWER, north of E. 233 St. between Bussing and Bronxwood Aves., NEW YORK, N. Y. Lester Hochberg, 4049 Laconia Ave., New York 66, N. Y. Arnold A. Arbeit, 154 Nassau St., New York 38, N. Y., archt.

▲ **Harrison L. Vogel**, 897 Best Court, Ridgewood, N. J., and **Wm. Kadel**, 74 Courter Ave., Wayne, N. J., Owners Build, **$2,000,000**, 80 HOUSES, off Clark St., BLOOMINGDALE, N. J. Gerald Heulitt, 49 Colfax Ave., Pompton Lakes, N. J., archt. G. Waldo Rude, 30 Colfax Ave., Pompton Lakes, N. J., engr.

▲ **Tamburelli Bldg. Co.**, 574 Grand Ave., Englewood, N. J., CA Est. approx. **$1,200,000**, CLUB HOUSE, Tammy Brook Country Club, Madison Ave., CRESSKILL, N. J. Ercole Tamburelli, 574 Grand Ave., Englewood, N. J. Gerber & Pancani, 11 Commerce St., Newark, N. J., archt. CD 5/10/60;
Baldwin Golf Course Constr. Co., Inc., 39 Lackawanna Pl., Bloomfield, N. J., CA Approx. **$300,000**, GOLF COURSE, Tammy Brook Country Club, Madison Ave., (Cresskill, N. J.). Robert Trent Jones, 20 Vesey St., New York, N. Y., archt.

▲ **Pike Constr. Co.**, 339 Broadway, Paterson, N. J., CA Est. **$1,700,000**, APARTMENT, Broadway and 27th St., PATERSON, N. J. Wesca Corp., 45 Church St., Paterson, N. J. CD 1/31/61.

▲ **Weintraub & Hay, Inc.**, 1932 Riverside Dr., Trenton, N. J., Owner Builds, **$1,700,000**, 100-unit RESIDENTIAL DEVELOPMENT, Bear Tavern Rd., etc., TRENTON, N. J.

▲ **Fleming Co.**, Wynnewood, Pa., LB **$1,589,177**, SENIOR HIGH SCHOOL, SEWAGE TREATMENT PLANT and DISPOSAL SYSTEM, BERWYN, PA. Paoli Area School Authority, Berwyn, Pa. Keast & Hood, 1201 Chestnut St., Phila., Pa., engrs. BA 3/29/61. CD 3/10/61.

▲ **Allen C. Minnix & Sons**, 216 C St. N.W., Wash., D. C., LB **$1,797,000**, (9 bidders), STUDENT UNION BLDG. ADDN., COLLEGE PARK, MD. Maryland University, College Park, Md. BA 4/4. CD 3/17/61.

▲ **Rupert Constr. Co.**, 3400 Lancaster Ave., Wilmington, Del., CA **$1,474,347**, MATHEMATICS and PHYSICS BLDG., NEWARK, DEL. University of Delaware, Newark, Del. BA 3/28/61. CD 4/10/61, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **S. C., Charleston**—BA 7/19—South Carolina Ports Authority, 1 Vendue Range, Charleston, GRAIN ELEVATOR and HANDLING FACILITY, North Charleston, $2,000,000. Palmer & Baker, 957 Springhill Ave., Mobile, Ala., and Lockwood-Greene Engineers, Inc., Montgomery Bldg., Spartanburg, engrs. CD 5/3/57.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Dpt. Hys., 1221 East Broad, Richmond, Bids opened 4/5, ROADS,

Va.—**Nello L. Teer Co.**, Trust Bldg., Durham, N. C., LB **$1,349,994**, (9 bidders), connection between Rte. 95 and Rte. 1 on Rte. 207, Proj. 0207-016-101, C501; grading, drainage, paving from 3.54 mi. north Int. Rte. 207 to Hanover County line on Rte. 95, Proj. 0095-016-002, G301, G303, B616, B618, Caroline Co.;

Va.—**Barnhill Contg. Co.**, Box 725, Tarboro, N. C., LB **$1,074,788**, (9 bidders), grading, paving from 0.4 mi. north Neabsco Creek to Fairfax County line on Rte. 95, Proj. 0095-076-101, G304, G306, Prince William Co.; LB **$1,001,728**, (10 bidders), grading, paving from 0.4 mi. north Int. Rte. 54 to Caroline County line on Rte. 95, Proj. 0095-042-003, G302, Hanover Co.;

Va.—**V. N. Green & Co., Inc.**, 1640 Fourth Ave., P. O. Box 2814, Charleston, W. Va., LB **$829,695**, (6 bidders), grading, paving from 0.08 mi. north Rte. 54 to 4.582 mi. north Rte. 54 on Rte. 95, Proj. 0095-042-003, G301, Contr. I, Hanover Co.; LB **$609,929**, (6 bidders), grading, paving from east end Abingdon bypass to 0.4 mi. east Int. Rte. 80 on Rte. 81, Proj. 0081-095-038, G302,009, G304, Washington Co.;

Va.—**Boyd & Goforth, Inc.**, Pineville Rd., Box 10436, Charlotte, N. C.; and **Lambeth Constr. Co.**, 1701 Retreat St., Box 1102, Greensboro, N. C., LB **$764,518**, (6 bidders), grading, paving from east of Martinsville east incl. bridge over Leatherwood Creek on Rte. 58, Proj. 0058-044-101, C502, B601, Henry Co.;

Va.—**R. H. Rose**, 49 Towanda Rd., Box 8508, Richmond, Va., LB **$523,844**, (7 bidders), grading, paving from 0.630 mi. south Prince William line to 0.084 mi. south Prince William line on Rte. 95, Proj. 0095-076-101, G306, Prince William Co.;

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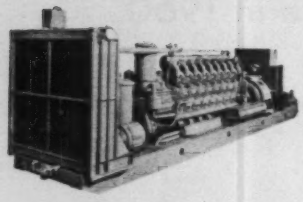

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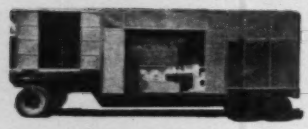

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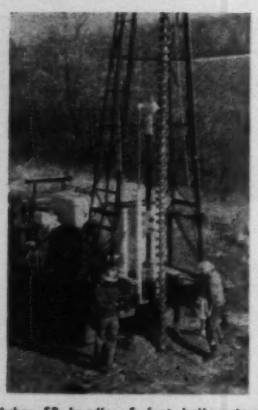

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Va.—**J. O. & C. M. Stuart,** 3121 South St. N. W., Wash., D. C., LB **$908,586,** (3 bidders), 4.624 mi. 24 ft. 5 in. b. conc. pavement, bit. top from Int. Rte. 606 to Int. Rte. 7 (Access Rd. Dulles International Airport) on Rte. 838, Proj. 0838-053-104, C501, Loudoun Co.;

Va.—**Charles B. Stephens Co.,** Box 299, Morristown, Tenn., LB **$557,866,** (7 bidders), grading, paving from west of Pounding Mill to west of Claypool Hill on Rtes. 19 and 460, Proj. 0019-092-101, C501, Tazewell Co.;

Va.—**Turner Bros.,** R. F. D. 3, P. O. Box 592, Salem, Va., LB **$597,221,** (8 bidders), grading, paving from north of Int. Rte. 11 to 2.489 mi. west Rte. 80 on Rte. 81, Proj. 0081-095-038, G302,009 G301, Washington Co. CD 3/20/61.

▲ **VIRGINIA**—Dpt. Hys., 1221 East Broad, Richmond, Bids opened 4/5, BRIDGES,

Va.—**Wiley N. Jackson Co.,** R. F. D. 4, P. O. Box 1408, Roanoke, Va., LB **$1,340,194,** (12 bidders), twin bridges over Occoquan Creek on Prince William-Fairfax County line on Rte. 95, Proj. 0095-076-101, B623, B624, Fairfax and Prince William Counties;

Va.—**Moore Bros. Co., Inc.,** P.O. Box 258, Verona, Va., LB **$421,107,** (11 bidders), five bridges between 0.4 mi. north Neabsco Creek and Fairfax County line on Rte. 95, Proj. 0095-076-101, B619, B621, B622, B626, B625, Prince William Co. CD 3/20/61.

▲ **WEST VIRGINIA**—State Rd. Comn., Charleston, Zone 5, Bids opened 4/4, ROADS,

W. Va.—**J. A. Jones Constr. Co. of Charlotte, N. C.,** Box 108, Berlin Heights, O., LB **$1,578,673,** c. conc. paving 4.788 mi. Interstate Rte. 64 from Secondary Rte. 19 to W. Va. Rte. 34, Putnam Co.; LB **$1,849,881,** c. conc. paving 6.065 mi. Interstate Rte. 64 from Secondary Rte. 13 to Secondary Rte. 19, Putnam and Cabell Counties;

W. Va.—**Central Asphalt Paving Co.,** 914 Nelson Bldg., Charleston 1, W. Va., LB **$207,453,** b. conc. wearing course 19.5 mi. Charleston-Clendenin Rd. Proj. 74,148 A, B, C, D and E and 2153, Kanawha Co. CD 3/21/61.

▲ **NORTH CAROLINA**—State Hy. Comn., Capitol Bldg., Raleigh, ROADS,

N. C.—**Thompson-Arthur Paving Co.,** 300 Benbow St., Greensboro, N. C., CA **$759,607,** grading, CABC, b. conc. base, surf., fencing 11.63 mi. resurf. and necessary constr. on existing west bound lane, Interstate Rte. 85 between NC 54 and Efland, Proj. 8.15045, I 85-3(19)147, Alamance and Orange Counties;

N. C.—**Dickerson, Inc.,** Box 448, Monroe, N. C., CA **$1,478,871,** fine grading, STBC, CABC, c. conc. stab. base, BST, b. conc. base, surf. 9.85 mi. surf. Interstate Rte. 95 from point on US 301 approx. 1.5 mi. north of Lumberton, north to point on NC 20, west of St. Paul's, Proj. 8.13979, I 95-1(9)22, Robeson Co. BA 3/28/61, CA 4/6/61. CD 4/3/61, under LB.

▲ **GEORGIA**—State Hy. Dpt., No. 2 Capitol Square, Atlanta, Zone 3,

rejected bids Feb. 3, grading, paving 16.842 mi. Causseta-Buena Vista Road, State Rte. 26, relocation, Chattahoochee and Marion Counties. LB **$2,065,777.** CD 2/8/61, under LB.

▲† **I. Young Constr. Co.,** Box 377, Beaufort, S. C., LB **$2,512,222,** Item 1, (13 bidders) WHERRY HOUSING IMPRVS., U. S. Naval Base, NBy-34529, Spec. 34529/60, KEY WEST, FLA. Dist. P. Wks. Bldg., Sixth Naval Dist., Bldg. 12, U. S. Naval Base, Charleston, S. C. BA 4/6. CD 3/7/61.

BUILDINGS—LB & CA

▲ **H. L. Coble Constr. Co.,** 1705 Battleground Ave., Greensboro, N. C., CA **$5,715,714,** 430 units, CAPEHART HOUSING NO. 2, Turner Air Force Base, Inv. 09-629-61-29, ALBANY, GA. Base Procurement Officer, Turner Air Force Base, Albany, Ga. BA 3/14/61. CD 3/28/61, under LB.

▲ **M. R. Harrison Constr. Corp.,** 100 N.W. 54th St., Miami, Fla., CA **$2,574,470,** Richter Memorial LIBRARY (Phase 2), University of Miami, CORAL GABLES, FLA., University of Miami, 1200 Campo Sano Ave., Coral Gables, Fla. BA 3/30/61. CA 4/4/61. CD 4/5/61, under LB.

▲ **J. E. Green Constr. Co.,** Division St., Johnson City, Tenn., LB **$1,658,400,** HOSPITAL ADDN., BRISTOL, TENN. Bristol Memorial Hospital, Midway St., Bristol, Pa. BA 4/5/61. CD 3/9/61.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Mich., Pontiac**—BA 5/16—City, City Hall, Contr. 7-A, SEWAGE TREATMENT PLANT, revision of existing sewage treatment plant, $2,400,000, Plans deposit $35; Contr. 7-B, INCINERATOR, $300,000, Plans deposit $35. Jones, Henry & Williams, 2000 W. Central Ave., Toledo, O., engrs. CD 1/9/61.

BUILDINGS—BA

▲ **O., Columbus**—BA 4/27—Bd. Educ., 270 E. State St., Alum Crest, Walford, Woodcrest and Watkins SCHOOLS. Over $1,700,000. David Schacknе, Jr., owners archt. CD 11/11/59.

HEAVY CONSTRUCTION—LB & CA

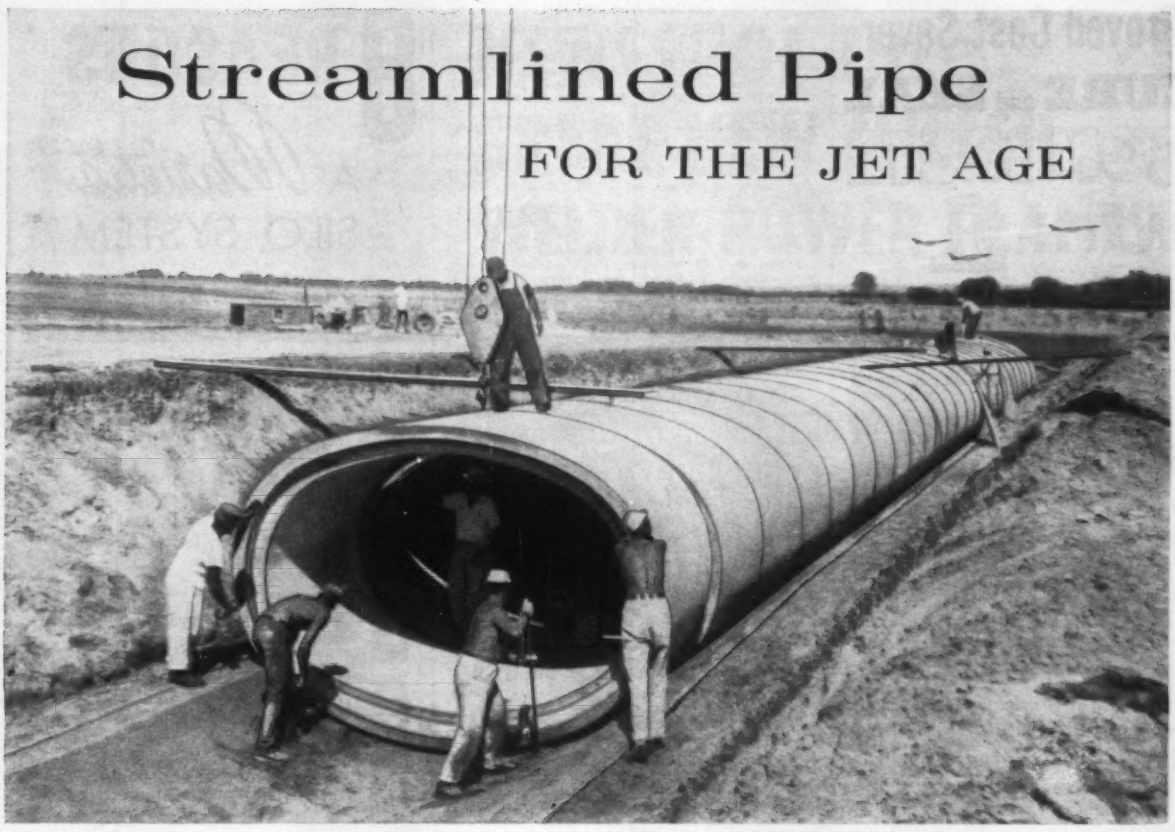
▲ **Permanent Constr. Co.,** 2200 N. 3rd St., Milwaukee, Wis. LB **$2,509,250,** (7 bidders), WATER FILTRATION PLANT, WISCONSIN. Village of Fox Point, Village Hall, Fox Point, Wis., Village of Whitefish Bay, Village Hall, Whitefish Bay, Wis. and City of Glendale, City Hall, Glendale, Wis. BA 4/5/61. CD 3/15/61.

Paul Grunau Co., 2697 S. Kinnic Ave., Milwaukee, Wis., LB **$124,440,** plumbing and heating contract for WATER FILTRATION PLANT (Wisconsin);

Dietz Electric Co., 264 E. Ogden Ave., Milwaukee,

(Continued on page 72)

Streamlined Pipe
FOR THE JET AGE



108 inch Lo-Hed being installed at Offutt Air Base, Nebraska, jet headquarters for the U.S. Strategic Air Command.

LO-HED®
REINFORCED CONCRETE PIPE

Jet airfields require special drainage pipe with features only Lo-Hed can provide. The elliptical shape permits a minimum depth of cover on minimum slopes under vast jet airfields. Also, Lo-Hed will not deflect even under tremendous loads . . . has a smooth, non-inflammable interior . . . assures greater capacity than equivalent size of round pipe.

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THOMPSON'S WATER SEAL

Eliminates wet sacks, papers, hosing and spraying

Spray deep penetrating, colorless Thompson's Water Seal on fresh concrete to cure and seal in one operation. Save time . . . save labor.

Effectively controls moisture loss for 28 days and beyond.

Assures uniform curing even in hot, dry weather.

Helps reduce checking, cracking, spalling.

Produces harder, dust-free surface.

Eliminates waterproofing concrete floors.

Permits adequate time for smooth troweling.

Send for technical bulletin and Contractors Case History file.

A proved bond breaker for pre-cast, tilt up and lift slab construction. Permits easy, clean separation of slabs, walls, pre-cast members.

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(Continued from page 70)

Wis., LB $262,295, electric contract for WATER FILTRATION PLANT, (Wisconsin); Santucci Constr. Co., 5025 Church St., Skokie, Ill., LB $555,900, (5 bidders), LAKE INTAKE for water filtration plant; LB $470,665, (5 bidders), TRANSMISSION MAINS for water filtration plant (Wisconsin).

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing, Zone 26, ROADS,

Mich.—Canonie Constr. Co., South Haven, Mich., CA $4,020,380, 6.134 mi. grading, drainage structures, 6 bridges on I 75 relocation US-10, Oakland Co.;

Mich.—Hertel-Deyo Co., 5205 S. Division Ave. S., Grand Rapids, Mich. and C. E. Utterback, 1101 N. Franklin, Mount Pleasant, Mich., CA $3,195,950, 6.508 mi. grading, drainage structures, 3 bridges on I 75 relocation US-10, Oakland Co.;

Mich.—Charles J. Rogers, Inc., 14836 Grand River Ave., Detroit, Mich., Cooke Contg. Co., 1116 Penobscot Bldg., Detroit, Mich. and Jutton-Kelley Co., 13240 Alber Dr., Dearborn, Mich., CA $1,493,555, 0.4 mi. dual 36 ft. non-rein. con. paving, 3 ramps, 2 bridges, service road, utility alteration and pump station on I-75 Chrysler Expressway, Detroit, Wayne Co.; CA $1,602,306, approach paving and bridge carrying Greenfield Rd. over Ford Rd. (M-153), Dearborn, Wayne Co.;

Mich.—S. Weissman Excavating Co., 15496 Telegraph, Detroit, Mich., CA $744,906, 2.043 mi. water sys. alteration on John C. Lodge Expressway. Grand total $11,039,097. BA 3/15, CA 4/4. CD 3/23/61, under LB.

BUILDINGS—LB & CA

▲ deHamel Constr. Co., 3713 Lee Rd., Cleveland 20, O., CA Est. $1,500,000, 85,000 sq. ft. AERSOL PACKAGING PLANT, BEDFORD HEIGHTS, O. Sprayon Products Co., 2075 E. 65th St., Cleveland 3, O. Raymond A. Davies, 25000 Euclid Ave., Cleveland 17, O., archt.

▲ Alex Fodor Realty Co., 3308 Lorain Ave., Cleveland 13, O., Owner Builds, $1,500,000, $1,000,000 first year (two year program), 70 Norwood Estates HOMES, Birchcroft and Richard Drs. and Lockhaven Rd., BROOK PARK, O.

▲ Johnson, Drake & Piper, 112 N. 7th St., Terre Haute, Ind., CA Est. $7,500,000, build and lease POST OFFICE and LUBRITORIUM, CINCINNATI, O. U. S. Post Office Dpt., Pennsylvania Ave. between 12th and 13th Sts., NW, Wash., D. C. BA 3/10/61. CD 3/14/61, under LB.

▲ Mitzel Co., 2069 E. 36th St., Cleveland 15, O., CA Est. $1,700,000, 45,000 sq. ft. 48 alley BOWLING CENTER, Parmatown Lanes, Day Dr. opposite May Co. store, PARMA, O. A. A. Levin, Marshall Bldg., Cleveland, O. and Consolidated Bowling Corp., First Federal Savings & Loan Bldg., Niagara Falls, N. Y. Andrew J. Burin, 21139 Lorain Rd., Cleveland 26, O., archt.

▲ Ralph M. Parsons Co., 617 W. 7th St., Los Angeles, Calif., CA Est. $5,000,000, 7,500 barrel a day ISO-CRACKING UNIT, Toledo Refinery, TOLEDO, O. Standard Oil Co. of Ohio, Cedar Point Rd., Toledo, O. CD 11/4/60.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲ Tex., Dallas—BA 5/15—City, City Hall, East Side WATER TREATMENT PLANT, at Sunnyvale, incl. 3 story, 49,094 sq. ft. chemical bldg., 1 story, 77 x 30 ft. carbon slurry bldg., 3 story, 27,606 sq. ft. filter bldg., 2 story, pump station and storage reservoir. $6,500,000. Plans deposit $35. Forrest & Cotton, 600 Vaughn Bldg., engrs. CD 12/1/55.

▲ Tex., Quitman—BA 5/15—Wood County, Courthouse, Quitman, No. 605-1, DAM and SPILLWAY, for Wood County Lake No. 1, on Dry Creek, nead Quitman; No. 605-2, DAM and SPILLWAY for Wood Co. Lake No. 2 on Keys Creek, near Mineola; No. 605-3, DAM and SPILLWAY for Wood Co. Lake No. 3, on Little Sandy Creek, near Hawkins; No. 605-4, DAM and SPILLWAY for Wood Co. Lake No. 4, on Big Sandy Creek, near Winnsboro. $2,500,000. Plans deposit each contract $35. Freese, Nichols & Endress, 407 Dancigr Bldg., Fort Worth, and Wisenbaker, Fix & Associates, 1400 Peoples Natl. Bank Bldg., Tyler, engrs. CD 12/21/54.

▲† Oklahoma—BA About 5/16—U. S. Eng., Box 61, Tulsa, Zone 2, RELOCATING U. S. HY. 64, Arkansas River Section grading, Cowskin Creek and interchange sections grading and bridges, Keystone Reservoir, Arkansas River, CIVENG-34-066-61-103. $4,500,000.

▲† Oklahoma—BA About 5/18—U. S. Eng., Box 61, Tulsa, BANK STABILIZATION and CHANNEL RECTIFICATION, Arkansas River, Short Mountain, to Wilsons Rock, CIVENG-34-066-61-105. $1,500,000. Plans deposit $1. CD 1/25/52, under Oklahoma and Arkansas.

BUILDINGS—BA

▲ Mo., Columbia—BA 5/3—Curators of University of Missouri, 116 Jesse Hall, 4 story DORMITORY, and 5 story DORMITORY, 2 story DINING HALL for men, Providence Rd. and Kentucky Ave. $2,475,000. Hellmuth, Obata & Kassabaum, Inc., 315 N. 10 St., St. Louis 1, Mo., archts. CD 1/10/61.

▲ Mo., St. Louis—BA 5/11—Washington University, Lindell and Skinker Blvds., Zone 30, four 4 story RESIDENCE HALLS, one for 210 women and three for 202 men, each east of Big Bend Blvd. between Forsyth and Wydown Blvds. Proj. CH M0-60(D). Over $2,000,000. Plans deposit $25. Hellmuth, Obata & Kassabaum, Inc., 315 N.10 St., Zone 1, archts. CD 2/28/61.

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1. Built for safer, better bulk materials protection.
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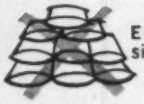
8.  Eliminates expensive bagging.

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AMERICAN-MARIETTA COMPANY

Marietta, Ohio

Representatives in principal cities.

▲ **Neb., Omaha**—BA 5/11—Omaha Public Power Dist., 803 Electric Bldg., furnish, erect POWER PIPING SYSTEMS complete and erection equipment furnished under other contracts for North Omaha Station Unit No. 4, $1,250,000-$1,750,000. Plans deposit $300. Durham & Richardson, Inc., 2962 Harney, and Gibbs & Hill, Inc., 461 Eighth Ave., New York 1, N. Y., engrs.

BUILDINGS—SLC

▲ **Mo., St. Louis**—Christian Bd. Publications, Pine and Beaumont Sts., soon lets contract 3 story PUBLISHING PLANT ADDN. $2,000,000.

HEAVY CONSTRUCTION—LB & CA

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, ROADS, **Millstone Constr. Inc. & Bangert Bros. Road Builders, Inc.**, 8510 Eager Rd., St. Louis 17, Mo., CA **$1,480,802** grad., culverts 2-24 ft. conc. pavts. 1.823 mi., St. Louis Co.; CA **$664,370** grad., culverts, 2-24 ft. conc. pavts. 0.868 mi. St. Louis Co. BA 3/31, CA 4/6. CD 4/10/61, under LB.

▲ **B. H. Baker, Inc.**, 2605 N. Circle Dr., Colorado Springs, Colo., CA **$2,280,000,** 40,000 seat rein.-con. STADIUM, Air Force Academy, COLORADO SPRINGS, COLO. Air Force Academy Foundation, First National Bank Bldg., Colorado Springs, Colo. BA 3/29/61. CD 4/3/61, under LB.

▲† **Cheves Constr. Co.**, 933 S. Country Club Drive, Mesa, Ariz., and **T. C. Bateson Constr. Co.**, 10130 Monroe Drive, Dallas, Tex., CA **$1,674,000,** Type 3, AIR ROUTE TRAFFIC CONTROL TOWER, ALBUQUERQUE, N. M. Federal Aviation Agency, Box 90007, Airport Station, Los Angeles, Calif. BA 2/1/61. CD 3/29/61, under LB.

BUILDINGS—LB & CA

▲ **Preston Haglin Co.**, 3945 West 44th St., Minneapolis, Minn., CA **$1,500,000,** 1 story, 120,000 sq. ft. corrugated BOX PLANT, East River Rd. North of Hy. 100, FRIDLEY, MINN. Downing Box CO., 3832 North Third St., Milwaukee, Wis. J. R. Magney, Foshap Tower, Minneapolis, Minn., engr.

▲ **J. E. Dunn Constr. Co.**, 929 Holmes, Kansas City, Mo., CA **$3,575,000,** 1, 2, & 3 story, rein-con. frame, structural steel Shawnee-Mission West HIGH SCHOOL, Overland Park, MISSION, KAN. Shawnee-Mission High School Dist., 7401 Johnson Dr., Shawnee-Mission, Kan. BA 3/30, CA 4/6. CD 4/4/61, under LB.

▲ **Foster-Wheeler Corp.**, 666-5th Ave., New York, N. Y., CA design and construct 60,000 tons per year AMMONIA PLANT, BIG SPRING, TEX. W. R. Grace & Co., 3 Hanover Square, New York 4, N. Y.

▲ **Kesk Co.**, 136 S. Derbigny St., New Orleans, La., CA **$1,671,895,** completion of 412 CAPEHART UNITS, Fort Bliss, EL PASO, TEX. U. S. Eng., P.O. Box 1538, Albuquerque, N. M.

▲ **Texas Gas Corp.**, Winnie, Tex., Owner Builds, **$1,250,000,** CONCENTRATED BENZINE PLANT remodeling, imprv., WINNIE, TEX. CD 2/8/61.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Los Angeles**—BA 4/28—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 567 and 568, West Pomona STORM DRAIN and South Pomona STORM DRAIN, Pomona. $1,720,000. Plans deposit $2.60. CD 11/10/58.

▲ **Calif., Los Angeles**—BA 5/10—Los Angeles Harbor Dpt., City Hall, 2,100 ft. concrete WHARF, Berths 136-139, Wilmington. $2,000,000. CD 5/18/60.

▲† **Washington**—BA About 5/17—U. S. Eng., City-County Airport, Walla Walla, first stage constr. LOWER MONUMENTAL DAM, Snake River, incl. cellular cofferdam, abutment, diversion channel, CIVENG-45-164-61-45. $3,000,000. CD 10/3/60.

HEAVY CONSTRUCTION—LB & CA

▲† **Bureau Reclamation, Dpt. Interior**, Ogden, Utah, rejected bids Mar. 16, EARTHWORK and structures, Willard Canal, Station 1 plus 86 to Station 430 plus 00, Weber Basin Proj. near Ogden, Box Elder and Weber Counties, Spec. No. DC 5500, UTAH. LB **$2,830,416.** Will re-advertise. CD 3/20/61, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, ROAD,
Fredericksen & Kasler, 212 13 St., Sacramento, Calif., and **Gordon H. Ball**, 300 Camille Ave., Danville, Calif., CA **$4,450,114,** grading, paving 3.5 mi. 4 lane freeway, Newport Freeway (State Sign Rte. 55) between ½ mi. south of Santa Ana Freeway and 1/10 mi. south of Chapman Ave., Orange Co. BA 3/16. CA 4/5 CD 3/21/61, under LB.

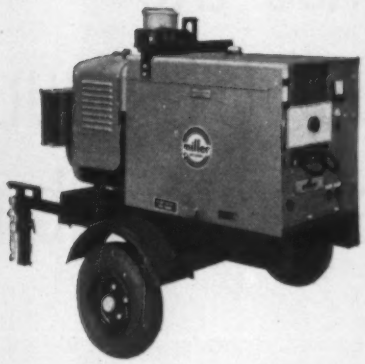
▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, ROAD,
B. J. Ukropina, T. P. Polich, Steve Kral and John R. Ukropina, 201 E. Las Tunas Dr., San Gabriel, Calif., CA **$6,114,848,** grading, paving 2.9 mi. 8 lane freeway on Ventura Freeway between Hollywood Freeway and Buena Vista St. in Burbank, incl. 15 structures, Los Angeles Co. BA 3/23. BA 4/6. CD 3/28/61, under LB.

▲ **O. K. Mittry & Sons**, 15905 So. Broadway, Gardena, Calif., CA **$1,708,195,** CHET HARRITT DAM, LA MESA, CALIF. Helix Irrigation Dist., 8111 University Ave., La Mesa, Calif. BA 3/28, CA 4/3. CD 4/5/61, under LB.

(Continued on page 76)

NEWEST OF THE GREAT NEW MILLER WELDER/POWER PLANTS

AD-225-L GASOLINE ENGINE-DRIVEN AC/DC WELDER/POWER PLANT



This is as close to being "an all-around hand" as you're ever likely to find. For instance:

A-C or D-C WELDING. The AD-225-L produces 300 amperes at 30 volts a-c or 225 amperes at 30 volts d-c – both at 100% duty cycle. Ample open circuit voltage gives superior results with a-c, d-c or a-c/d-c electrodes.

METALLIC INERT GAS WELDING. Using the d-c side of the AD-225-L, and with new style hand guns feeding small diameter wire from spools, aluminum, mild or stainless steel may be welded by the MIG process. Power for the gun is provided by the 115 volt d-c outlet.

A-C POWER PLANT. As an a-c power plant, this model produces 7 KW of 115/230v single phase 60 cycle current.

AUXILIARY D-C POWER. While welding, the AD-225-L delivers 1 KW of 115v d-c which is ample for operation of flood lights, power tools, etc.

Complete information sent promptly.

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81 HYDRAULIC JACKS & PULLERS to choose from

Self-Contained **STANDARD JACKS** 1½ to 100 tons capacity.

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Self-Contained **CENTER-HOLE PULLERS** 30 to 100 tons capacity.

SIMPLEX RE-MO-TROL UTIL-A-TOOL **JACKS** JENNY ROL-TOE

TEMPLETON, KENLY & CO.
2553 Gardner Road
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Better service accessibility alone makes the "Euc" C-6 your best tractor buy

In the Euclid C-6 crawler you get the advantages of job proved components and years-ahead engineering that keeps down-time and operating cost to the absolute minimum. You get unitized assembly of major components and service accessibility that is unsurpassed by any crawler . . . replacement labor costs are well below those for comparable tractors. For example, complete removal and replacement of a C-6 radiator takes less than one third of the time required for the same work on a competitive machine.

With easy accessibility for servicing and maintenance, the C-6 gives more work-time on the job . . . steps up production . . . helps beat the profit squeeze by cutting operating costs to a new low.

EUCLID Division of General Motors
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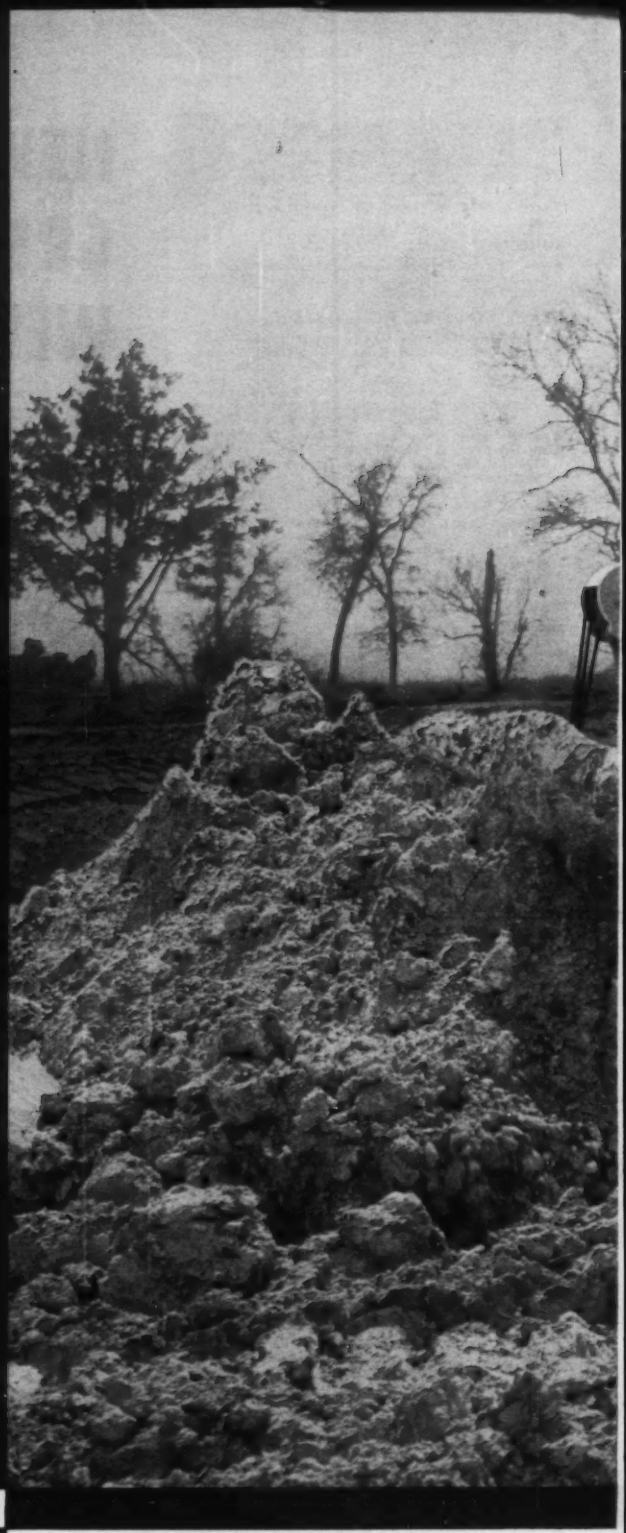
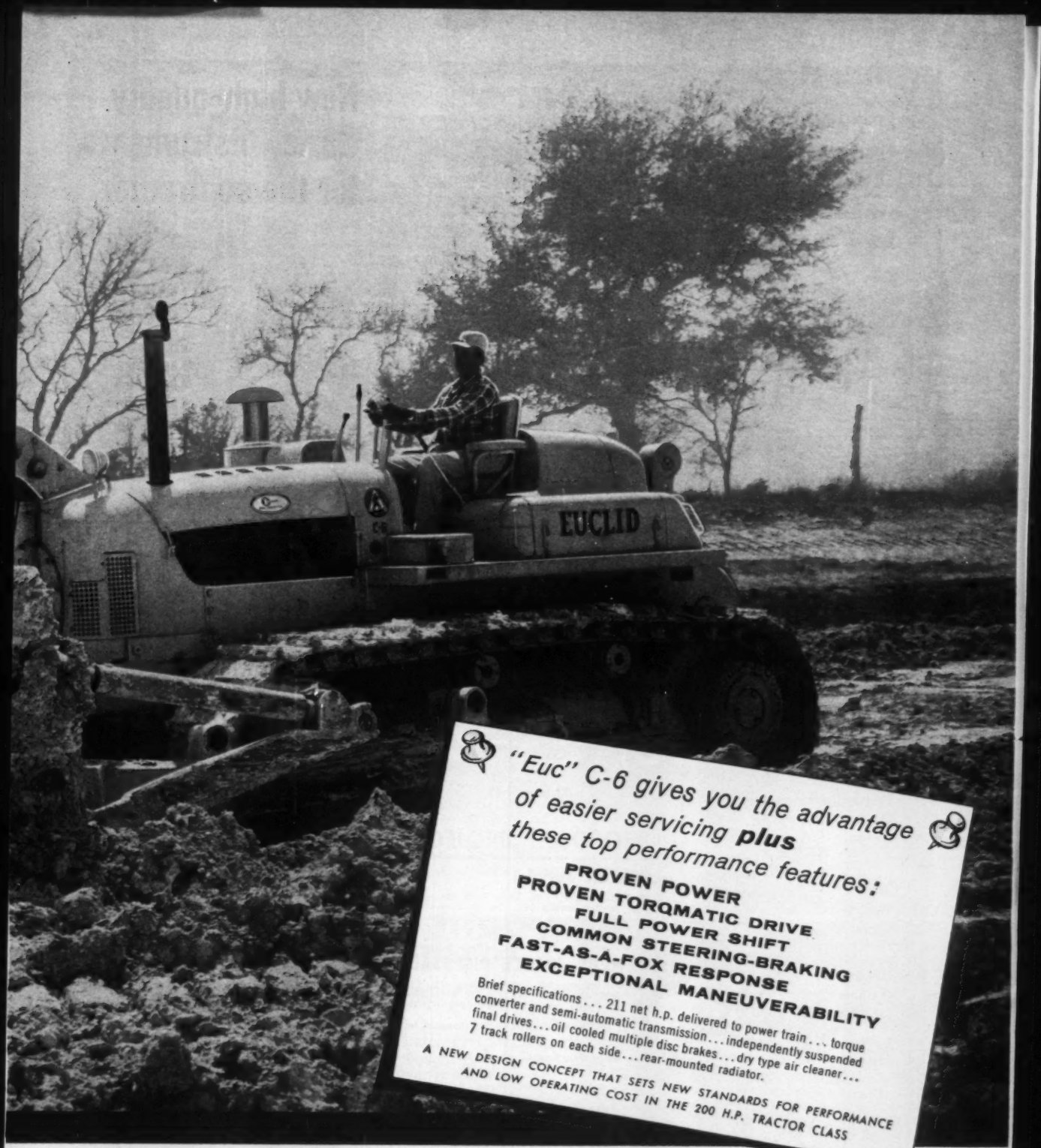
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland



Full-power shift . . . this Euclid C-6 crawler responds like nothing you've ever touched!

Get all the facts and figures on the C-6 . . . you'll find low operating cost plus proven reliable performance make it your best tractor investment.



"Euc" C-6 gives you the advantage of easier servicing ***plus*** *these top performance features:*

PROVEN POWER
PROVEN TORQMATIC DRIVE
FULL POWER SHIFT
COMMON STEERING-BRAKING
FAST-AS-A-FOX RESPONSE
EXCEPTIONAL MANEUVERABILITY

Brief specifications . . . 211 net h.p. delivered to power train . . . torque converter and semi-automatic transmission . . . independently suspended final drives . . . oil cooled multiple disc brakes . . . dry type air cleaner . . . 7 track rollers on each side . . . rear-mounted radiator.

A NEW DESIGN CONCEPT THAT SETS NEW STANDARDS FOR PERFORMANCE AND LOW OPERATING COST IN THE 200 H.P. TRACTOR CLASS

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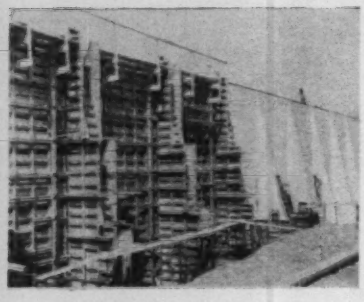

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- Robertson Q. panels nailed to Simplex-Waco panels to produce architectural finish in other parts of project.
- Forms were used both vertically and horizontally . . . proving Simplex-Waco flexibility! Over 26,000 sq. ft. of forms used on this project.
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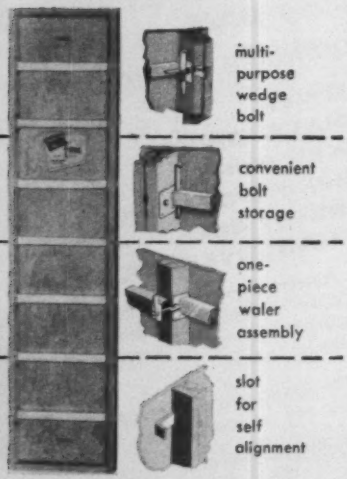

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Simplex Waco **SIMPLEX INDUSTRIAL FORMS, INC.**

5627 Industrial Avenue
Rockford (Loves Park) Illinois

(continued from page 73)

BUILDINGS—LB & CA

▲ **Ernest Stettler & Sons**, Box 403, 1600 N. Main, Logan, Utah, LB $1,912,000 (14 bidders), general contract STUDENT LIVING QUARTERS, U. S. U. Proj., LOGAN, UTAH. Latter Day Saints Church, Bldg. Committee, 125 S. Main, Salt Lake City, Utah. BA 3/30. CD 3/15/61.

▲ **J. B. Allen & Co.**, 36 E. Mason St., Santa Barbara, Calif., LB $3,748,000, est. $4,000,000 (10 bidders), HEATING PLANT and LABORATORY, University City, LA JOLLA, CALIF. University of California, Bd. Regents, General Service Bldg., Scripps Institute of Oceanography, La Jolla, Calif. BA 4/6. CD 3/7/61.

▲ **Barrett Constr. Co.**, 1800 Evans St., San Francisco, Calif., CA $1,560,200, Russell H. Varian LABORATORY adjacent to Physics Lecture Hall, PALO ALTO, CALIF. Stanford University, Bus. Mgr., Encina Hall, Stanford University, Palo Alto, Calif. CD 2/10/61, under LB.

▲ **Meyer & Young Building Corp.**, 679 Portola Dr. San Francisco, Calif., and **Swinterton & Walberg Co.**, 200 Bush St., San Francisco, Calif., CA $3,200,000, 21 story steel curtained wall APARTMENT, Russian Hill, SAN FRANCISCO, CALIF. Meyer & Young Building Corp., c/o contractors. Hewitt C. Wells, 165 Jessie St., San Francisco, Calif., archt. Gould & Degenkolb, 149 California St., San Francisco, Calif., engrs. CD 3/14/61, under CA.

▲ **Craft Constr. Co.**, 2812 Sanguinetti Lane, Stockton, Calif., LB $1,947,147, (5 bidders), six 3 story wood frame, brick veneer, wood panel interior, COED RESIDENCE HALLS, 11 bldgs., STOCKTON, CALIF. University of the Pacific, N. Pacific Ave., Stockton, Calif. BA 4/4. CD 3/8/61.

▲ **Fred S. Macomber Co.**, 4704 E. McKinley St., Fresno, Calif., CA $2,740,991, Springtown JUNIOR HIGH SCHOOL and Chief Francisco Selano JUNIOR HIGH SCHOOL, VALLEJO, CALIF. Vallejo Unif. School Dist., III Idaho St., Vallejo, Calif. BA 3/21, CA 3/31. CD 3/30/61, under LB.

CANADA

BUILDINGS—BA

▲ **Ont., Toronto**—BA 5/3—University of Toronto, Simcoe Hall, 1, 2 and 6 story, rein.-con. ribbing, inset brick panels, air-conditioned three section CHEMISTRY BLDG. WINGS, St. George St. $4,475,000. Plans deposit $150. Allward & Gouinlock, 245 Davenport Rd., archts. CD 7/1/60.

▲ **B. C., Fort St. John**—BA 5/11—Sisters of Charity of Providence, Fort St. John, 100 bed, rein.-con., brick veneer HOSPITAL. $1,700,000. Plans deposit $100. Gardiner, Thornton, Gathe Assocs., 1520 Alberni St., Vancouver, archts. CD 2/6/61.

BUILDINGS—SLC

▲ **Ont., Kitchener**—B. F. Goodrich Canada Ltd., 409 Weber St. W., soon lets contract 1 story TIRE PRODUCTION FACTORY. $7,000,000. CD 4/5/61.

HEAVY CONSTRUCTION—LB & CA

▲ **O. K. Constr. Ltd.**, 8635 Stadium Rd., Edmonton, Alta., CA $1,307,875, PAVING Contract No. 202, incl. 710,000 sq. yd. 2 in. asphalt surf., 710,000 sq. yd. cement base course, etc., excavation, curb and gutter EDMONTON, ALTA. City, City Hall, Edmonton, Alta. BA 3/22/61, CA 4/6/61. CD 3/30/61, under LB.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Mich., Pontiac**—City, 35 S. Parke Ave., EXPANSION of WATER MAINS SYS., 24- to 46-in., Auburn and Updyke Rds. south side city limits to north city limits, two WATER STORAGE TANKS, one 2 m.g. and one 3 m.g., Baldwin Ave. $3,500,000. Jones, Henry & Williams Co., Security Bldg., Toledo, O., consult. engr.

SEWERS, WASTE DISPOSAL

▲ **Fla., Orlando**—Bd. Comrs., Orange Co., Courthouse, STORM SEWERS and WATER CONTROL. $3,475,000. R. K. Michaels & A. E. O'Neal, 3025 E. South St., consult. engrs. CD 2/27/61.

▲ **N. J., Trenton**—Ewing-Lawrence Sewerage Auth., 600 Whitehead Rd., SEWERAGE LINES EXTENSIONS, West Trenton, Pennington Rd., Hillwood Lakes and Braeburn Park sections. $2,000,000. Buck, Seifert & Jost, 112 East 19th St., New York, N. Y., consult. engrs. CD 12/7/59.

▲ **O., Toledo** — Comrs. Lucas County, Courthouse, SANITARY SEWER in Adams Twp. to rectify pollution in Deline Ditch. $1,547,331.

▲ **S. C., Columbia**—Jackson-Gills Creek Public Service Authority, c/o R. A. Bolding, chn., 1221 Hampton St., SEWERAGE COLLECTION SYSTEM. $2,850,000. B. P. Barber & Associates, 1418 Marion St., engrs.

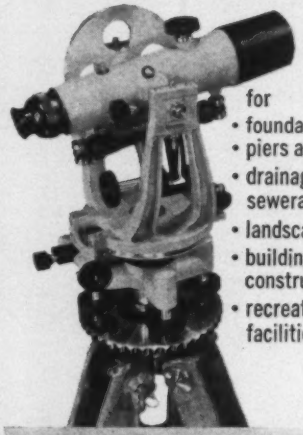
▲ **B. C., Vancouver**—Greater Vancouver Sewage & Drainage Dist., 2294 West 10, WATER MAIN, Delta and Richmond, $1,722,500; one mi. 42 in. TRUNK SEWER PIPE LINE EXTENSION, Burnaby. $600,000. CD 11/19/52.

BRIDGES

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg, **Allegheny Co.**—Ramps C and D on Fort Duquesne Bridge, $3,420,000. Richardson, Gordon & Associates, 3 Gateway Center, Pittsburgh, consult. engrs. CD 4/10/58.

(Continued on page 78)

New high-quality Gurley Instruments for the contractor



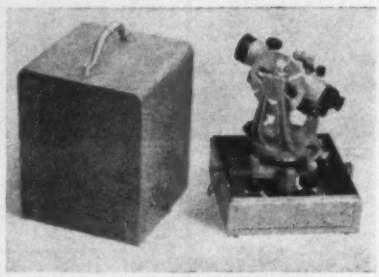
for
- foundations
- piers and walks
- drainage and sewerage lines
- landscaping
- building construction
- recreational facilities, etc.

Gurley, best-known name in American surveying instruments, now introduces high-quality, highly-accurate, American-made instruments for the Contractor, Engineer, Architect and Builder.

Model 287 Contractor's Transit, shown above, is one of the compact instruments now being offered. The telescope transits, swinging through a complete vertical plane. This permits measuring a wide range of vertical angles, makes possible prolonging lines, and simplifies checking adjustments. Leveling may be done by the reversion vial, readable either above or below the telescope. Both horizontal and vertical angles are read to 5 minutes by vernier.

Features: rugged U-frame construction, full-size leveling head, clamps and tangents, precision centers. Telescope of superior optical quality with anti-reflection coated lenses, internal focusing, and with covered glass reticle having cross lines in dust-free focal plane. Attractive light gray finish, highly visible on construction work. You will be surprised at the reasonable price of this fine instrument.

See your Gurley dealer or **write for Catalog 250 describing the complete line of Instruments for the Contractor.**



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Soil Saver applied to highly critical center of steep grade median strip.
Stabilizing grass growing through Soil Saver heavy jute mesh.
Simple as dirt,
and almost
as cheap

SOIL SAVER for highway erosion control

Are you one of those whose important concern is highway planning, construction and renewal? Then you need the essential facts about Soil Saver. Developed by Ludlow as a low-cost, simple, and effective method that immediately protects and secures seed and soil until it is permanently stabilized by vegetation, Soil Saver is a heavy jute mesh that wind, water or growing cover cannot displace.

Placed strategically in critical sections where flash run-offs and heavy rains threaten to erode or wash out new gradings on median strips, shoulder ditches and embankments, Soil Saver has dramatically proved itself with state highway departments across the country. Successful where other methods have failed, Soil Saver is both economical *and* effective. In rough comparison, costs of materials and labor for sod are 75% greater, while concrete and asphalt paving run a prohibitive 1400% greater than Soil Saver. Find out how Soil Saver can go to work for *you* . . . write Dept. EN-31 for full details.

Ludlow

SOIL SAVER

LUDLOW TEXTILE PRODUCTS
Needham Heights 94, Mass.
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CONCRETE PROOF:

10 Reasons Why You Should Use WAL-JOINT®

PVC* Wall Reinforcement For All Your Porous Masonry Wall Construction Work

1 Waljohn's PVC* WAL-JOINT® maintains the accurate alignment of concrete or cinder-block wall sections

2 Allows for different stresses on a building caused by heavy traffic, the expansion & contraction movements due to climate & temperature changes

3 Keeps walls from buckling or bowing

4 Easily handled; Easily installed on location

5 Quickly & efficiently cut — leaves no ragged or frayed edges — CUTS CLEAN

6 Easily & effectively butted

7 Delivered to you in 8 ft. lengths; packed in easily stacked cartons

8 Does not deteriorate — has greater life expectancy than other material

9 Cheaper foot-for-foot than any other material

10 Has a greater elongation and expansion factor than other materials used for same purpose

Perfect for the elimination of building fatigue and construction failure . . . acts as wall stabilizer and shock-absorber. WAL-JOINT'S greater expansion and contraction factor makes it "breathe" with the building—promotes longer life for porous masonry walls.

*PVC means Polyvinylchloride Plastic, which is superior to any other wall joint material . . . Safer, Cheaper, Easier to Handle, Gives Greater Wear.

Simple to Install and Cut on Location.

Wal-Joint fits snugly into block.

Waljohn's PVC* Wal-Joint is extruded to 2⅜" across x 1⅜" high in Light Green.

Available in Convenient 8 ft. lengths in Easily Handled, Easily Stored Carton.

Call us for Facts and Figures on how WAL-JOINT® fits into your construction picture. Ask for Free Sample, Test Reports and Prices.

Prime Mfrs.— **WALJOHN WATERSTOP, Inc.**

A Division of Waljohn Plastics, Inc.

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SHore Road 8-0300

Another Fine Plastic Extrusion for Building —
WATERSTOPS • CHAMFER-STRIPS • WAL-JOINTS

(Continued from page 76)

STREETS AND ROADS

▲ **ALABAMA**—State Hy. Dpt., Montgomery, Zone 4, ROADS,
Jefferson Co.—6.85 mi. Interstate Hy. 59, 5 interchanges and 9 grade separation structures, Birmingham, $14,614,000.

▲ **MASSACHUSETTS** — Commonwealth Mass., Dpt. P. Wks., 100 Nashua St., Boston, ROADS,
Foxboro-South Walpole—6 mi. Rte. 95, Foxboro to South Walpole, $4,500,000. Bids July-August 1961.
Mansfield-Foxboro—6 mi. Rte. 95 from Mansfield to Foxboro, $5,100,000. Bids July-August 1961.
South Walpole-Norwood—6 mi. Rte. 20 South Walpole to Norwood in Canton, $8,000,000. Bids August-September 1961.

▲ **BRITISH COLUMBIA**—Govt. of Canada, Parliament Bldgs., Ottawa, Ont., ROAD,
Watson Lake-Ross River Dist.—130 mi. road to assist development of mine in the Yukon. $1,947,000.

AIRPORTS

▲ **Fla., Miami**—Dade County Port Authority, County Courthouse, 200,000 sq. ft. ENGINE OVERHAUL SHOP, 2 JET ENGINE TEST CELLS, SERVICE BLDG., 90,000 sq. ft. HANGAR with 3 story SHOP, OFFICE and STORAGE ADDN., industrial waste plant, structural steel, ventilation air conditioning, fire protection, piping and equipment, electrical work. $12,000,000. Contractors must pre-qualify by May 16. Eastern Air Lines, lessee. Albert Kahn Associated Engineers & Architects, Inc., 345 New Center Bldg., Detroit, Mich., consult. engr. CD 4/15/60.

▲† **N. Y. Rome**—U. S. Eng., 111 E. 16 St., New York Zone 3, will not construct 18 UNDERGROUND LAUNCHING SITES, ICBM MISSILES, Griffiss Air Force Base. $80,000,000. Project abandoned. CD 10/10/60.

▲† **Va., Langley Air Force Base**—U. S. Eng., foot of Front St., Norfolk, plans by Marcellus Wright & Son, 100 East Main St., Richmond, U. S. AIR FORCE HOSPITAL. $3,150,000, (no appropriation).

UNCLASSIFIED

▲ **Fla., St. Petersburg Beach (Br. St. Petersburg)**—Emerson L. Parker, 202 150th Ave., St. Petersburg, plans by Rader Assocs., 611 1st Ave. N., St. Petersburg, SEAQUARIUM. $2,000,000.

▲ **South Carolina** — Farmers Telephone Cooperative, Kingstree, TELEPHONE LINES, Florence, Clarendon, Williamsburg, Lee, Sumter and Georgetown Counties. $2,206,000. McCall-Thomas Eng. Co., 941 Broughton St. S.E., Orangeburg, consult. engr.

PUBLIC BUILDINGS

▲ **Calif., Chula Vista**—Sweetwater Union School Dist., 1130 Fifth Ave., plans by Kistner, Curtis & Foster, 401 Spreckles Bldg., San Diego, Zone 1, Castle Park HIGH SCHOOL. $2,550,000.

▲ **Calif., Duarte**—Duarte Unified School Dist., 1427 Buena Vista Ave., voted $1,000,000 bonds Mar. 21 and $1,500,000 State Loan, SCHOOLS incl. Duarte HIGH SCHOOL. $1,600,000.

▲ **Calif., Los Angeles**—Bd. Educ., 1425 S. San Pedro St.,
plans by Smith, Powell & Morgridge, 208 W. 8 St., JUNIOR HIGH SCHOOL, southeast corner Carson St. and Bonita St., Wilmington. $2,700,000. Bids 1962.
plans by Santochi Breinin & Assoc., 8825 Olympic Blvd., Beverly Hills, Calif., Melvin Ave. SCHOOL ADDN., Reseda. $425,000. Bids 1962.
plans by Thornton M. Abell, 654 S. Saltair Ave., Los Angeles, Calif., West of Shirley SCHOOL, Van Owen St. and Oakdale Ave., West San Fernando Valley. $560,000. Bids 1962. CD 12/1/60.

▲ **Calif., Los Angeles**—Bd. Educ., 1425 S. Pedro St., plans by Deasy & Boiling, 8810 Melrose Ave., Birmingham JUNIOR HIGH SCHOOL, Van Nuys, $2,885,000, J. E. Byers, 8810 Melrose Ave., Los Angeles, Calif., consult. engr., Bids late 1962; plans by Hagman & Meyer, 132 S. Vermont Ave., Los Angeles Calif., 122 St. SCHOOL, El Segundo, $950,000. Bids 1962. CD 12/1/60.

▲† **Conn., New London**—U. S. Coast Guard Academy, Mohegan Ave., BARRACKS BLDG. and conversion of existing barracks bldg. to CLASSROOM use. $1,600,000.

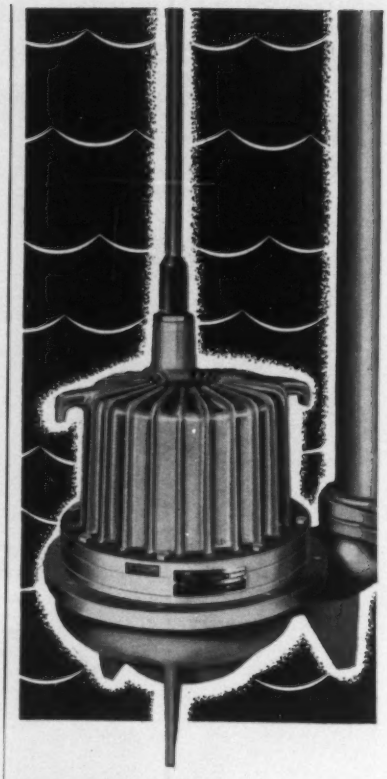
▲† **Mont., Billings**—General Services Admin., 19th and F Sts. N. W., Wash., D. C., plans by J. G. Link & Co., Electric Bldg., FEDERAL COURTHOUSE and OFFICE. $6,500,000 (no appropriation). Bids in Spring, 1962. CD 2/4/60.

▲ **N. J., Freehold**—Freehold Regional High School Dist., Broadway, plans by Micklewright & Mountford, East Stuyvesant, Trenton, HIGH SCHOOL, Yellow Brook Rd, Howell Twp. $3,400,000. CD 11/26/58.

▲ **N. Y., Grand Island**—Grand Island Central School Dist., defeated bonds Mar. 28, JUNIOR-SENIOR HIGH SCHOOL. $3,787,000. CD 3/10/61.

▲ **N. Y., Great Neck**—Bd. Educ. UFSD No. 7, 345 Lakeville Rd., defeated $2,385,000 referendum Mar. 29, Red Book ELEMENTARY SCHOOL east of Upper Middle Neck Rd. north of Forest Row, Village of Kings Point. $1,719,200. CD 3/6/61.

▲ **N. Y., Lake Ronkonkoma** — Sachem Central School Dist. No. 5, School St., plans by George J. Dippell, 187 Brooklyn Ave., Massapequa, 1 story Sagamore JUNIOR HIGH SCHOOL, Holtsville. $2,358,000. Kenneth Tomann, 450 7 Ave., New York, Zone 1, structural engr. Phillips & Elbal, 101 Park Ave.,



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New York, Zone 17, mechanical engrs. Bids May 1961. CD 6/20/60.

▲ **N. Y., Levittown**—Levittown P. School Dist., North Village Green, Levittown, voted $1,780,000 referendum Mar. 29, Division Ave. SCHOOL ADDN. CD 3/30/61.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Chapman Evans & Delehanty, 50 Broadway, Zone 4, Proj. NY-5-59, 20 story 156 unit APARTMENT, Amsterdam Ave. between West 100, West 101 Sts. $3,000,000. CD 1/23/61.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Harry M. Prince, 101 Park Ave., Zone 17, Proj. NY-5-56, 3 buildings (1) 9 story 70 unit APARTMENT, W. 94 St. between Columbus and Amsterdam Aves.; plans by William Lescaze, 211 E. 48 St., New York, 17, N. Y., (2) 20 story 168 unit APARTMENT, east side Columbus Ave., W. 91, W. 92 Sts.; plans by De Young, Moscowitz & Rosenberg, 205 E. 42 St., New York 17, N. Y. (3) 19 story 162 units APARTMENT, east side Amsterdam Ave., W. 88 St., W. 89 St.. Total Est. $6,758,000. CD 1/23/61.

▲ **O., Cincinnati**—City, City Hall, plans by Shepley, Bullfinch, Richardson & Abbott, 1 Court St., Boston, Mass., Potter, Tyler Martin & Roth, 128 E. 6th St., Cincinnati, Hake & Hake, 2400 Gilbert Ave., Cincinnati, 11 story General HOSPITAL ADDNS. $17,000,000. Fosdick & Hilmer, Fifth-Third Bank Bldg., consult. engrs. Bids early 1962. CD 11/14/60.

▲ **Tenn., Greeneville**—State Comn. of Mental Health, Cordell Hull Bldg., Nashville, plans by Godwin & Rawls, 210 E. Market St., Johnson City, mental and physical handicap HOSPITAL ADDN. $1,500,000. Appalachian Engineers, 214 Commerce St., Kingsport, struc. engrs. Loest & Stanley, Colonial Heights, Kingsport, mech. engrs. CD 10/7/57.

▲ **Tex., Dallas**—Dallas Ind. School Dist., 3700 Ross Ave., plans by Mark Lemmon, 3211 Southland Center, and Collins & Dryden & Associates, 2921 Fairmount St., Franklin D. Roosevelt HIGH SCHOOL, Bonnie View Rd. $2,000,000. Hunt & Joiner, 4512 N. Central Expressway, and Gregerson & Gaynor, 3010 Blackburn St., consult. engrs. Bids May 1961. CD 10/7/60.

▲ **Tex., Lancaster**—Lancaster Ind. School Dist., bond election May 6, Unit B, HIGH SCHOOL, $1,500,000.

▲ **Wis., Whitewater**—Bd. Regents of State Colleges, Madison, plans by Sanstedt, Knoop & Yarbro, 103 Otter St., Oshkosh, 2 L shaped, 166 x 90 x 38 ft. DORMITORIES, $1,600,000. Bids July 1961. CD 9/2/60.

COMMERCIAL BUILDINGS

▲ **Calif., Carmel**—Carmel Valley Manor (Northern California Congregational Homes, Inc.), Rte. 2, Box 890, plans by Skidmore, Owings & Merrill, 1 Bush St., San Francisco Carmel Valley REST HOME, Carmel Valley Rd. $4,000,000. Bids Nov. 1961.

▲ **Calif., Hayward**—Kaiser Foundation Hospitals, Executive Offices, 368-42 St., plans by Clarence W. Mayhew, 251 Post St., San Francisco, 2 story L-shaped rein.-con., stucco-pebble exterior MEDICAL OFFICE, Hesperian St. $1,500,000. August E. Waegemann, 20 Second St., San Francisco, consult. engr. Bids May 15, 1961.

▲ **Calif., Hollywood**—Ardmore Development Co., Inc., 7003 Hollywood Blvd., 13 story APARTMENT, southeast corner North Whitley Ave. and Franklin Ave. Over $5,700,000.

▲ **Calif., Los Angeles**—Pacific Southwest Realty Co., 215 W. 6 St., plans by Albert C. Martin & Assoc., 333 S. Beaudry St., BANK addn. 415 S. Main St. $1,500,000. Bids late 1961.

▲ **Calif., Palm Springs**—Doran May, 1983 N. Palm Canyon Dr., plans by Armet & Davis, 2440 W. 3 St., Los Angeles, rein.-con., frame, stucco Palm Springs Sands MOTEL-APARTMENTS and CONVENTION CENTER, North Palm Canyon Rd. $3,000,000.

▲ **Calif., San Jose**—Good Samaritan Hospital, Morse and Naglee Sts., plans by Anshen & Allen, 461 Bush St., San Francisco and L. D. Price, 510 S. Mathilda Ave., Sunnyvale, 200-bed Hospital. $3,500,000. To go ahead 1963.

▲ **Conn., Westbrook**—Cornelius Sugrue, c/o Damuck & Painchaud, archts., Hull Bldg., Wall St., Madison, MOTEL and SHOPPING CENTER, Horse Hill Rd, $2,000,000.

▲ **D. C., Wash.**—Roscoe-Ajac Constr. Co., 1107 19th St. N. W., plans by Edwin Weihe & Assocs., 810 18th St. N. W., 14 story OFFICE, 15th and M Sts. N. W., $4,750,000.

▲ **Fla., Boca Raton**—University Shopping Plaza, 301 NE 23rd Way, plans by Donald J. Reiff, archt.-engr., 1185 71st St. Miami Beach, 272,000 sq. ft. SHOPPING CENTER, $3,000,000.

▲ **Fla., Miami Beach**—Four Seasons Hotel Corp., S. J. Halperin, 420 Lincoln Rd., plans by Melvin Grossman, 420 Lincoln Rd., 400 units MOTEL and APARTMENT, swimming pool, 4855 Collins Ave. $10,000,000. Bliss Engineering Co., 4001 Chase Ave., struct. engr.

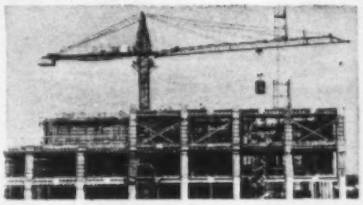
▲ **Fla., Miami**—Owner, c/o Charles Giller & Associates, archts.-engrs., 4100 N. Miami Ave., 240 unit APARTMENT, NW 119th. St. and 18th Ave., $2,000,000.

▲ **Ill., Chicago**—Combined Insurance Co. of America, 5050 Broadway, plans by A. Epstein & Sons, 2011 Pershing Rd., 7 story OFFICE ADDN. $1,750,000. Bids in June.

▲ **La., New Orleans**—Touro Infirmary, 3500 Prytania St., plans by Kiff, Colean, Voss & Sauder, 230 Park Ave., New York, N. Y., 7 story, 128-bed MEDICAL

(Continued on page 82)

HOW "CONCRETOR" The Linden Crane CLIMBING-CRANES REVERSE RISING CONSTRUCTION COSTS



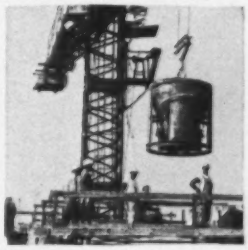
Peter Kiewit Sons utilizes "CONCRETOR" CLIMBING-CRANE in effecting important savings of time, labor, money on own office building in Omaha, Nebraska.

The "CONCRETOR" CLIMBING-CRANE goes up with the building while work is in progress . . . 2-3 floors at a time . . . the sky's the limit. Climbs by its own hoisting winch on floors or inside elevator shafts.

"CONCRETOR" CLIMBING-CRANES efficiently place loads "on a dime" . . . up to 100 foot radius due to the 360 degree swing of its 100 foot jib. They eliminate the need for expensive rehandling of materials over unnecessary ramps and runways, substantially lowering operating costs. Recommended for all types of construction including industrial, apartment and office buildings, silos, water towers, bridges and viaducts.

"CONCRETOR" CLIMBING-CRANES cost about half of what you'd expect to pay for earth-bound cranes of similar capacity. With ordinary use, the cost can be amortized over a period of about 2 years.

CHOICE OF 4 MODELS — RENTAL / PURCHASE PLANS. Delivered anywhere in U. S. Factory-trained service engineers available.



Crane is remote-controlled by one man from working deck with 3½ lb. electronic panel.

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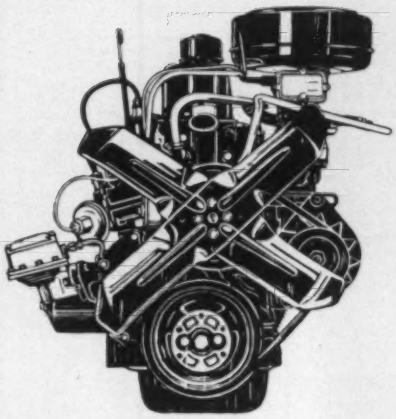
ALL-NEW FORD BIG SIX

262 CU. IN. TRUCK ENGINE

FORD DIVISION, *Ford Motor Company*,

New two-ton toughness! New stronger frame... huskier cab... rugged truck suspension that can give twice the front tire life of other types!



Now, the rugged simplicity of a big 262-cubic-inch Six is combined with the dependability of heavy-duty, *exclusive-truck* engine design. In a grueling 40,000-mile test of reliability, Ford's new Big Six was pitted against its principal competitor in the 2-ton field. Result: Ford's new engine required far fewer service adjustments. This means less time in the shop . . . more time on the job.

The new Big Six is one of *four* engine choices in Ford two-tonners for '61—including America's most popular truck V-8's. See your Ford Dealer. He will be glad to help you select the best engine for your job.

SEVEN MORE REASONS

WHY IT'S GOOD BUSINESS TO DO BUSINESS WITH FORD!

You save from the start with Ford's traditionally low prices! And your savings continue with lower operating and maintenance costs. These facts are documented by certified test reports from America's foremost independent automotive research firm. Ask to see these reports. They're on file at your Ford Dealer's.

In addition to these actual dollar-and-cents savings, the following bonus benefits provide greater protection against those annoying problems that are often associated with truck ownership.

1. **Rigid quality controls** give you the strongest safeguard of truck quality ever. One tangible result of these new and uniformly high standards is Ford's liberal new warranty program. Other results: extended durability and performance, lower operating costs.

2. **12,000-mile warranty** (or 12 months) on *all* 1961 Ford Trucks of any size. Each part, except tires and tubes, is now warranted by your dealer against defects in material or workmanship for 12 months or 12,000 miles, whichever comes first. The warranty does not apply, of course, to normal maintenance service or to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points.

3. **Exclusive 100,000-mile warranty** (or 24 months) on 401-, 477- and 534-cu. in. Super Duty V-8 engines. Each major engine part (including block, heads, crankshaft, valves, pistons, rings), when engine is used in normal service, is warranted by your dealer against defects in material or workmanship for 100,000 miles or 24 months, whichever comes first. Warranty covers full cost of replacement parts . . . full labor costs for first year or 50,000 miles, sliding percentage scale thereafter.

4. **Special fleet financing,** available for owners of two or more trucks, provides the opportunity to precisely tailor payments to your income patterns or depreciation schedules. Let your Ford Dealer explain how this fleet truck finance plan offers substantial savings and frees your working capital.

5. **36 district offices** staffed with sales engineers and service specialists are on call for special truck problems. Working with both dealers and customers, these experienced truck men represent another extra step Ford takes to provide your continued satisfaction.

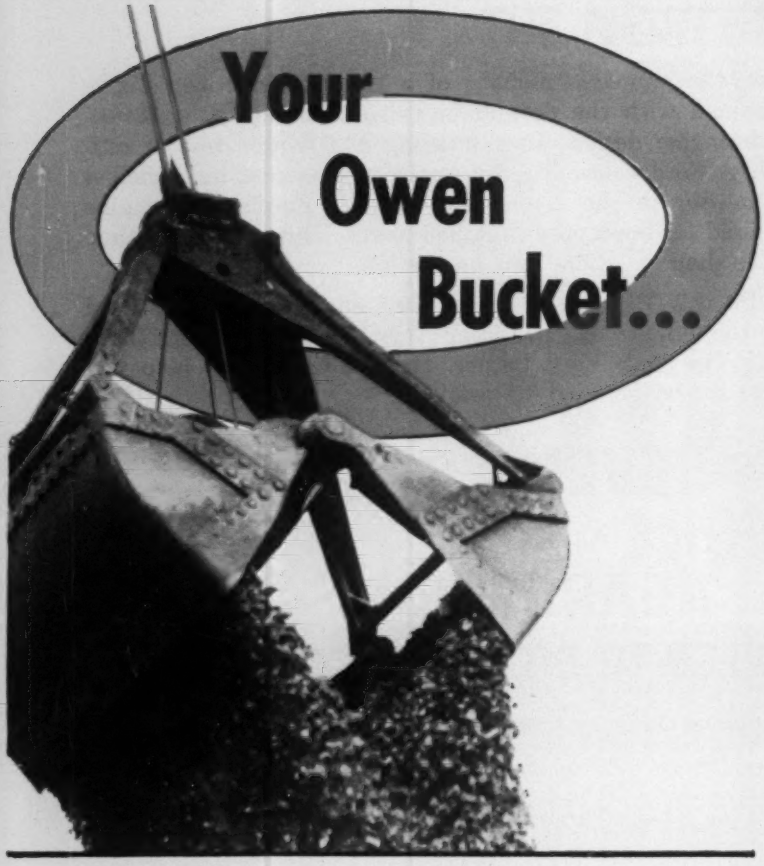
6. **Replacement parts depots** at 26 strategic locations across the country quickly supply needed parts from ample stocks. Ford's entire supply system is geared to give you faster service and reduce costly downtime . . . *wherever* you are.

7. **6,800 Ford Dealers,** including 273 specialized Heavy Duty truck dealers, can keep your trucks ready to go wherever they go. From coast to coast, fast Ford service—gas *and* Diesel—is always close at hand.

From Super Economy pickups to Diesel-powered tractors, you can now fill every truck need up to 76,800 pounds GCW with a modern, money-saving Ford Truck.

FORD TRUCKS COST LESS

SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!



Will Never Owe You Anything!

Your OWEN Clamshell Bucket starts making money for you from the first hefty mouthful it bites off . . . and keeps on making money because its rugged construction "stands up". It's the bucket with "The Big Bite that's Just Right!"

The OWEN has a strong appetite for work—an appetite that is never satisfied. These are exclusive features that keep it working for you:

Block and Tackle Type Reeving — **Recessed Lips**
One-piece Head Construction — **Single Main Shaft**
Riveted Bowl Assembly

Prompt service through ample inventory on new equipment and parts.

Write for OWEN information on how these features can make money for you.

The OWEN
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BREAKWATER AVENUE • CLEVELAND 2, OHIO
BRANCH OFFICES: New York • Philadelphia • Chicago • Berkeley, California • Fort Lauderdale, Florida

(Continued from page 79)

and SURGICAL WING. $3,493,000. Curtis & Davis & Assn., 2475 Canal St., New Orleans, La., consult. engrs. CD 12/19/58.

▲ **Minn., Edina (P.O. Minneapolis)**—County Club Realty, Inc., 3801 W. 50 St., Minneapolis, 172 HOMES, West 66 St. and Valley View Rd. $3,000,000.

▲ **Mo., St. Louis**—Collins Tuttle & Co., Inc., 261 Madison Ave., New York 16, N. Y., plans by A. Epstein & Sons, Inc., 2011 W. Pershing Rd., Chicago, Ill., 20 story, 250,000 sq. ft. air-conditioned OFFICE, northeast corner 6 and Olive Sts. $9,000,000. Sverdup & Parcel & Assoc., Inc., 915 Olive St., St. Louis, Mo., consult. engr. Diesel+ Constr. Co., 642 5 Ave., New York 19, N. Y., constr. consultants.

▲ **N. H., Dover**—Hyder Bros., Inc., c/o L. O. Geoffrian, archt., 1240 Maplewood Ave., Portsmouth, SHOPPING CENTER, 15 stores, bowling alley, etc., $2,000,000. Bids May 1961.

▲ **N. J., Matawan**—Howard Siegel, 80 West McClein Ave., Livingston, 172 HOUSES off Matawan Ave. and Aberdeen Rd. $3,500,000.

▲ **N. J., Newark**—Bd. Trustees, Columbus Hospital, 495 North 13th St., plans by Biernacki Poray Wladyslaw, 26 Park St., Montclair, eight HOSPITAL BLDGS., North 13th St. $10,000,000.

▲ **N. Y., New Hyde Park**—Long Island Jewish Hospital, 270-05 76 Ave., plans by Louis Allen Abramson, 25 W. 45 St., New York 19, N. Y., HOSPITAL ADDN. $8,500,000; 3 story STAFF RESIDENCE ADDN. $500,000. Constr. of residence late summer. CD 7/5/60.

▲ **N. Y., New York**—Bayshore Apartments, 240 E. 66 St., Zone 1, plans by Oscar Silverstone, 666 5 Ave., Zone 19, 18 story APARTMENT, Waverly Pl. $1,600,000.

▲ **N. Y., New York**—New York University, 100 Washington St., New York, Zone 12, (1) SCHOOL OF EDUCATION, Washington Square Center East, W. 4 St., Green St. and Washington Pl., $4,000,000; (2) CLASSROOM, Washington Square Center, W. 3 St., W. 4 St., $17,000,000. Constr. 1962-1963. CD 10/10/52.

▲ **S. C., Greenville**—The Franciscan Sisters of the Poor, St. Francis Hospital, plans by The McPherson Co., 408 S. Main St., 200-bed, HOSPITAL ADDN. Over $1,500,000. CD 2/16/59.

▲ **Tex., Corpus Christi**—Joe Barshop & Associates, 1500 S. Zarzamora St., St. Antonio, 285 HOTEL ADDN., and Nueces Hotel remodeling. $1,500,000.

▲ **Tex., Houston**—Cullen Center, Inc., 1st City Natl. Bank Bldg., plans by Welton Becket & Associates, 802 Lovett Blvd., 10 story, 250 room HOTEL AMERICA, Cullen Center. $4,000,000. Lockwood, Andrews & Newman, 1010 Waugh Ave., and H. E. Bovay, Jr., 5009 Caroline St., consult. engrs. Bids September 1961. CD 9/6/60.

▲ **Tex., Tyler**—Mother Frances Hospital, 825 E. Houston St., HOSPITAL ADDN. $3,000,000.

▲ **Wis., West Allis**—Rite Realty Co., 3121 W. Wisconsin Ave., Milwaukee, plans by R. W. Kemp, 8500 W. Capitol Drive, Milwaukee, (415) APARTMENT, $3,500,000.

▲ **Ont., Ottawa**—Principal Investments Ltd., 2119½ Carling Ave., 1 and 2 story, 633x160x120x100 ft., 1,819,620 cu. ft. rein.-con. piles, reinforced walls, brick SHOPPING CENTER ADDN., Billings Bridge Plaza. $1,500,000. CD 1/12/61.

▲ **Que., Quebec City**—Bell Telephone Co. of Canada, 1050 Beaver Hall Hill, Montreal, 5 story, 1,253,000 cu. ft. stone TELEPHONE EXCHANGE extension, Place d'Aiguillon and d'Youville St. $4,600,000.

INDUSTRIAL BUILDINGS

▲ **Ky., Harroldsburg**—Kentucky Utilities Co., 120 S. Limestone St., Lexington, 156,250 kw. GENERATING STATION at Dix Dam Station. $17,500,000.

▲ **O., Huron**—E. I. duPont de Nemours & Co., Inc., duPont & Nemours Bldgs., Wilmington 98, Del., METHANOL PLANT, near here.

▲ **Ont., Kitchener**—B. F. Goodrich Canada Ltd., 409 Weber St. W., 1 story tire production FACTORY, $7,000,000. Bids soon.

PUERTO RICO

▲ **Puerto Rico, Bayamon**—Oscar Mendoz, c/o Torres-Beauchamp-Marvel, engrs., 452 Ponce de Leon Ave., San Juan, Puerto Rico, 1400 HOMES, 200 acres. $9,000,000.

▲ **Puerto Rico, San Juan**—L. D. Long, San Juan Darlington, San Juan, Puerto Rico, plans by Sacmag of Puerto Rico, Inc., archts.-engrs., 55 Cervantes St., San Juan Puerto Rico, 29 floor 300-room HOTEL. $3,500,000.

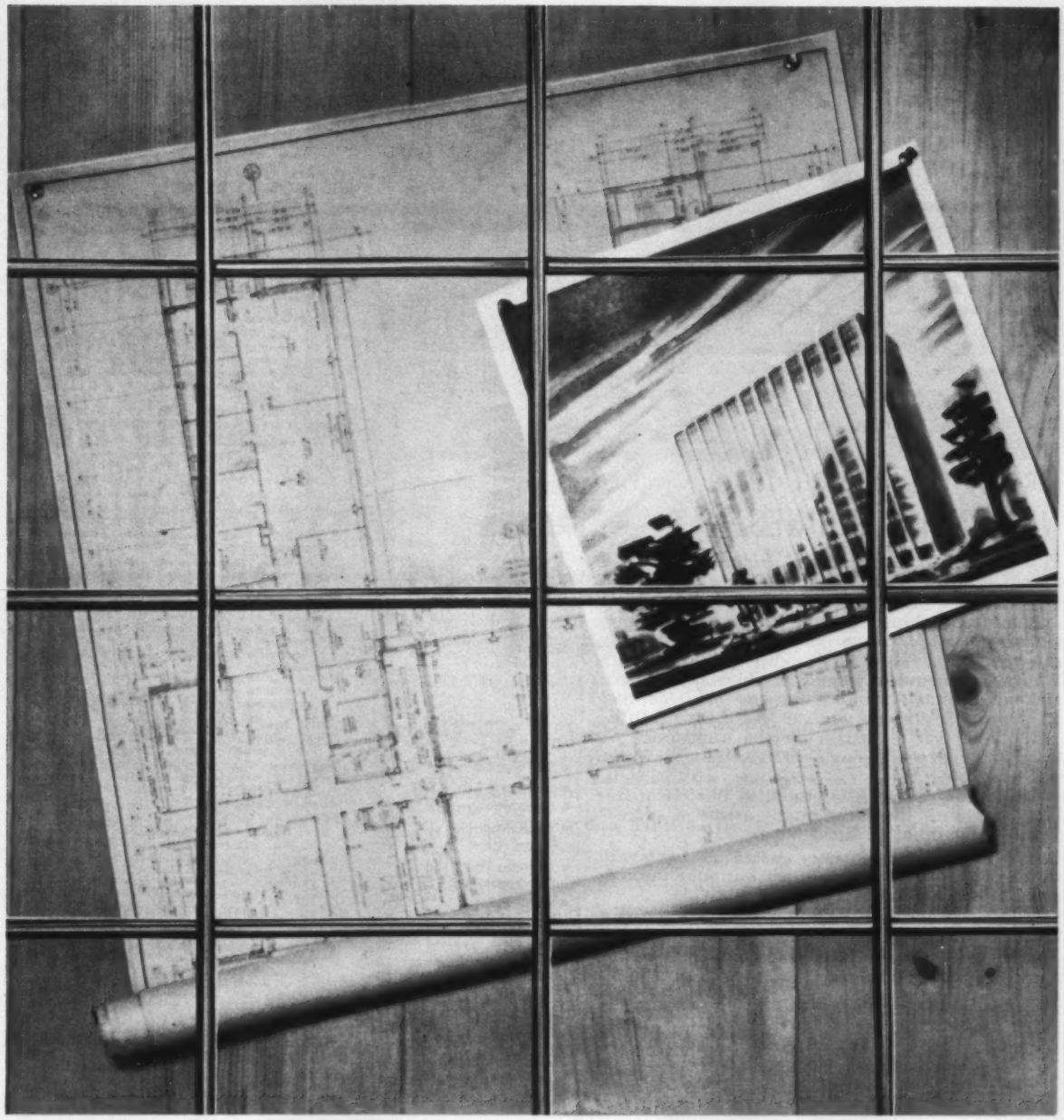
LATIN AMERICA

▲ **Argentina, Buenos Aires**—Eaton Ejes (subsidiary of Eaton Mfg. Co., 739 E. 140 St., Cleveland O.), c/o Quentin Groth, Italia Hotel Romanelli Reconquista 645, Buenos Aires, AXLE PLANT a site near here. $5,000,000.

▲ **Peru**—Cerro Corporation, 300 Park Ave., New York 22, N. Y., U.S.A., two 7 mi. WATER DRAINAGE and VENTILATION TUNNELS, Graton Tunnel at Casapalca Mine, Carbonyacu. $8,400,000. Constr. late 1961.

FOREIGN

▲ **Germany**—Technische Werke Stuttgart, Stuttgart West Germany, 180 mi. GAS PIPE LINE, Mannheim to Kehl via Karlsruhe and Ulm. $20,000,000. Contractors interested may register now.



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CONSTRUCTION REPORTS

Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲† **M. A. Gammino Constr. Co.,** 728 Valley St., Providence, R. I., LB **$8,178,004,** Fox Point HURRICANE BARRIER, ENG-19-016-61-23, RHODE ISLAND. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. BA 4/11/61. CD 2/14/61.

BUILDINGS—LB & CA

▲ **E. & F. Constr. Co.,** 94 Wells St., Bridgeport, Conn., LB **$5,080,000,** (4 bidders), St. Mary's HOSPITAL ADDN., WATERBURY, CONN. St. Mary's Hospital Corp., 56 Franklin St., Waterbury, Conn. BA 4/11/61. CD 3/21/61.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **N. Y., New York**—BA 4/25—New York City Housing Auth., Rm. 312, 299 Broadway, New York, Zone 7, fdns. and general constr., heating and ventilating, electric work and plumbing work Rutgers HOUSES, Proj. No. NYS-80, Madison St., Rutgers St., Cherry St. and Pike St., $8,215,000, plans deposit $75, extended date; installing ELEVATORS at Rutgers Houses, plans deposit $25. CD 4/10/61.

▲† **Md., Fort George G. Meade**—BA 4/27—U. S. Eng., 24 St. and Maryland Ave., Baltimore, 400 units Capehart HOUSING, Unit 2, ENG-18-020-61-22. $6,500,000. Plans deposit $10. Extended date. CD 4/5/61.

▲ **Pa., Ambler**—BA 4/27—Ambler Joint High School Authority, Ambler, Wissohickon SENIOR HIGH SCHOOL. $2,500,000. Plans deposit $100. Extended date. Buchart Associates, 611 W. Market St., York, archts. CD 3/16/61.

▲ **N. Y., New York**—BA 5/2—New York City Housing Auth., Rm. 1002, 299 Broadway, New York 7, (1) fdns. and general contr. (2) heating and ventilating (3) electric work (4) plumbing, Base Bid A, rein.-con. design) and Base Bid B (structural steel design) Proj. No. NYC-36, Mary K. Simkhovitch HOUSES, Henry St., Scammel St., Madison St., Gouverneur St., Water St., Jackson St., Franklin D. Roosevelt Dr. and Montgomery St., $8,000,000, plans deposit $75, extended date; furnishing and installing ELEVATORS at Mary K. Simkhovitch Houses, plans deposit $25. CD 4/6/61.

▲ **N. J., Newark**—BA 5/10—Bd. Educ., 31 Green St., South Eighth Street SCHOOL ADDN. $2,625,000. Litwack & Shteir, 9 Clinton St., archt. CD 2/24/61.

▲ **Pa., Media**—BA 5/10—Riddle Memorial Hospital, Media, Riddle Memorial HOSPITAL. $2,500,000. Lawrie & Green, 321 N. Front St., Harrisburg, archts. Edgar T. Clapp, 1930 N. 2nd St., Harrisburg, engr. CD 2/5/60.

▲ **N. J., Newark**—BA 5/22—Bd. Educ., 31 Green St., 1 and 3 story Quitman Street ELEMENTARY SCHOOL. $3,360,000. Wm. Lehman, 972 Broad St., archt. D. Stasio & Van Buren, 136 Liberty St., New York 6, N. Y., struc. engrs. Visco Franzblau Assoc., 114 Liberty St., New York 6, N. Y., mech. engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **McCloskey & Co.,** 1620 W. Thompson St., Phila., Pa., LB **$2,538,195,** (8 bidders), north Capitol St. improvements, GRADE SEPARATIONS at Rhode Island Ave. and T St. and incidental work, Randolph Place to Bryant St., WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pennsylvania Ave., N.W., Wash., D. C. BA 4/11/61. CD 3/20/61.

BUILDINGS—LB & CA

▲ **Wilmorite, Inc.,** Scottsville, N. Y., CA **$3,000,000-$4,000,000,** 384,000 sq. ft. SHOPPING PLAZA, Monroe Ave. and French Rd., ROCHESTER, N. Y. Pittsford Plaza, Inc., c/o contractor.

▲ **Simons and Greer, and William Abbott,** Hatboro, Pa., Owner Builds, **$2,000,000,** High Rise APARTMENT with OFFICES and STORES, Penn St., HATBORO, PA. Ralph Caldwell, Richboro, Pa., archt.

▲ **Whiting-Turner Contr. Co.,** 6229 N. Charles St., Baltimore 12, Md., CA Est. **$3,000,000,** 330,000 sq. ft. ultra modern design FACTORY and OFFICES, 24 acre tract, OWINGS MILLS, MD. Maryland Cup Co., 1100 S. Eutaw St., Baltimore 1, Md. Lockwood Greene Eng. Co., 41 E. 42 St., New York, N. Y., archt.

SOUTH

BUILDINGS—BA

▲ **Fla., Daytona Beach**—BA 5/16—Halifax Dist., Hospital, Lakeshore Dr., Halifax HOSPITAL, East Wing Addn., $2,000,000. W. R. Gomon & Assocs., Box 1671, archts. CD 9/14/59.

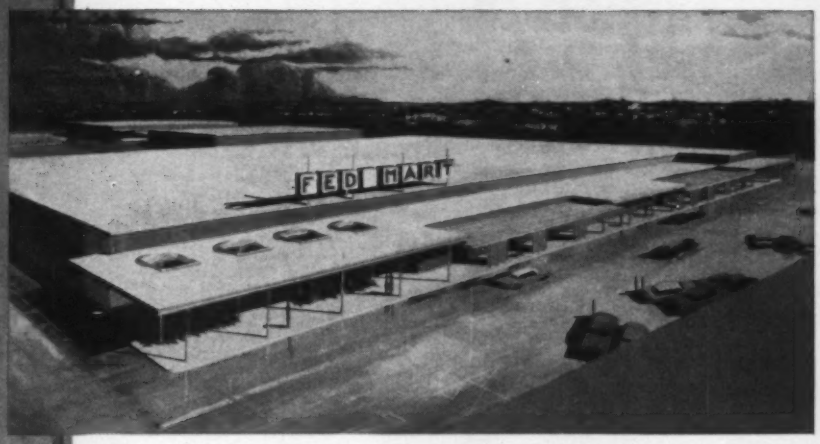
▲ **N. C., Winston-Salem**—BA 6/1—Bd. Comrs. Forsyth Co. Courthouse, general contract 10 story, 338,068 sq. ft. Forsyth General HOSPITAL, $10,000,000. Plans deposit $200. Lashmit, James, Brown & Pollock, 865 S. 4 St., archts. CD 10/12/60.

HEAVY CONSTRUCTION—LB & CA

▲† **Midwestern Constr. Co.,** Daniel Bldg., Tulsa, Okla., LB $2,595,340, 10 DOCK A/C FUEL SYSTEM MAINTENANCES, etc., Robins Air Force Base, Inv. 33-600-61-163, MACON, GA. Aeronautical Systems

(Continued on page 86)

Finish on time, skip the overtime ...with STEEL



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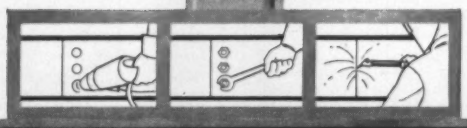

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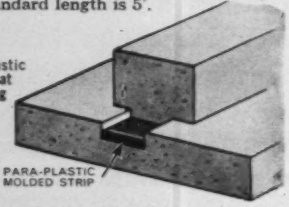

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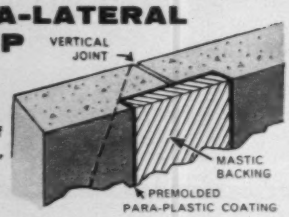

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(Continued from page 84)

Center, Wright-Patterson Air Force Base, Ohio. CD 7/22/60.

BUILDINGS—LB & CA

▲ **Ervin Constr. Co.**, 3400 Rozzells Ferry Rd., Charlotte, N. C., Owner Builds, **$2,350,000**, 236 RESIDENCES, CHARLOTTE, N. C.

▲ **John Volpe Constr. Co.**, 4333 N.W. 7th Ave., Miami, Fla., CA **$3,475,000**, HOSPITAL ADDN., HOLLYWOOD, FLA. South Broward District Memorial Hospital, 3501 Johnson St., Hollywood, Fla. BA 3/15/61, CA 4/7/61. CD 3/21/61, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., State Dept. Bldg., Columbus, Zone 15, Bids opened 4/4, ROADS,

O.—**Allegheny Contracting Industries, Inc.**, 801 Bingham St., Pittsburgh, Pa., LB **$6,989,947**, est. $7,718,300, (6 bidders), Type T 71 and structures 4.181 mi. State Rte. 2-28.16, State Rte. 525-0.00, I 90-1(19)15, U 329(19) (City of Euclid) (City of Wickliffe) (Village of Willoughby Hills) Proj. 148, Cuyahoga and Lake Counties;

O.—**National Engineering & Contracting Co.**, 1968 W. 3rd St., Cleveland, O., LB **$2,547,124**, est. $2,999,700, (13 bidders), Type T 71 and structures 0.772 mi. State Rte. 3-16.91, I 70-6(5)99 (City of Columbus) Proj. 149, Franklin Co.;

O.—**Nick Cenci & Sons, Inc.**, 844 N. Cassady Ave., Columbus, O., LB **$763,786**, est. $954,500, (7 bidders), Type T 71 and structure 1.688 mi. US Rte. 21-12.36, US Rte. 22-9.90, I 77-2(4)48, Proj. 151, Guernsey Co.;

O.—**J. R. Savage**, 770 Woodbury Ave., Columbus, O., LB $773,987, est. $854,600, (3 bidders), Type T 35 1.991 mi. US Rte. 22-13.27 (City of Steubenville), Proj. 164, Jefferson Co. CD 3/17/61.

BUILDINGS—LB & CA

▲ **J. L. Simmons Co., Inc.**, 506 S. Wabash St., Chicago, Ill., LB **$4,248,000**, HOSPITAL ADDN., JOLIET, ILL. St. Joseph's Hospital, 372 N. Broadway, Joliet, Ill. BA 3/28/61. CD 3/8/61.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **New Mexico**—BA 4/27—U. S. Eng., P.O. Box 1538, Albuquerque, Two Rivers RESERVOIR PROJ., Rio Hondo, Roswell, Chaves Co., ENG-29-005-61-9. $5,500,000. Extended date. CD 3/29/61.

HEAVY CONSTRUCTION—LB & CA

▲ **H. B. Zachry Co.**, P.O. Box 21188, San Antonio 21, Tex., CA **$4,974,382**, 8,800 ft parallel NW-SE RUNWAY, Love Field, DALLAS, TEX. City, City Hall, Dallas, Tex. BA 4/3/61. CD 4/7/61, under LB.

▲ **Morrison-Knudsen, Inc., Kaiser Co. Perini Corp. Walsh Constr. Co. and F & S Contg. Co.**, 319 Broodway Ave., Boise, Idaho, LB **$39,809,359**, est. $45,752,318, (7 bidders), YELLOWTAIL DAM and POWERPLANT, incl. arch-type concrete dam approx. 520 ft. high and approx. 1,450 ft. long at crest; 28 ft. concrete-lined diversion tunnel approx. 860 ft. long.; spillway consisting of inlet channel, intake structure, concrete-lined 32 ft. diameter tunnel, and stilling basin; powerplant and outlet structures at foot of dam to accommodate four 50,000 kilowatt generating units driven by 70,000 horsepower hydraulic turbines, Yellowtail Unit, Montana-Wyoming Lower Bighorn Division Missouri River Basin Project, 45 mi. southwest Hardin, Bighorn Co., Spec. No. DC-5525, MONTANA. Bureau Reclamation, Dpt. Interior, New High School Gymnasium, Hardin, Mont. BA 4/11/61. CD 2/28/61.

BUILDINGS—LB & CA

▲ **Fuel Economy Eng. Co.**, New York Bldg., St. Paul, Minn., CA Total cost **$12,000,000** SUPERSTRUCTURE Fox Lake POWER PLANT ADDN., 84,000 kw generator, new steam boiler, etc., SHERBURN, MINN. Interstate Power Co., 1000 Main St., Dubuque, Iowa. BA 3/1. CD 2/23/61.

▲ **Lloyd E. Clarke, Inc.**, 6581 University St., Des Moines, Iowa, will not construct HOMES, adjoining Village Shopping Center, DAVENPORT, IOWA. **$6,500,000**. Project abandoned. CD 1/24/61 under CA.

FAR WEST

BUILDINGS—BA

▲ **Calif., Sacramento**—BA 5/2—Pacific Telephone Co., 3240 Arden Way, 3 story Northern Counties Area HEADQUARTERS OFFICE, near here. $3,500,000. Hertzka & Knowles, 32 Fremont St., San Francisco, archts.

▲ **Calif., Davis**—BA 5/11—Regents of University of California, Davis, 2 and 3 story wood frame and stucco, slab on grade, 276 unit MARRIED STUDENT HOUSING, Davis Campus. $2,250,000. Plans deposit $75. Clark & Beuttler, 552 Mission St., San Francisco, Calif. and Geo. T. Rockrise, 524 Sacramento, San Francisco, Calif. archts. Wm. B. Gilbert & Assocs., 150 Green, San Francisco, Calif., engrs. CD 7/30/59.

▲ **Calif., Santa Cruz**—BA 5/12—Cabrillo Junior College Dist., 315 Third Ave., Watsonville, Proj. II, 18,395 ft. APPLIED ARTS & LANGUAGE; 19,329 ft. BUSINESS & SOCIAL SCIENCE; 27,720 ft. SCIENCE; 21,195 ft. MATHEMATICS, ENGINEERING & TECHNOLOGY; Proj. II will incl. water, sewer and

(Continued on page 89)

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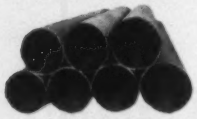

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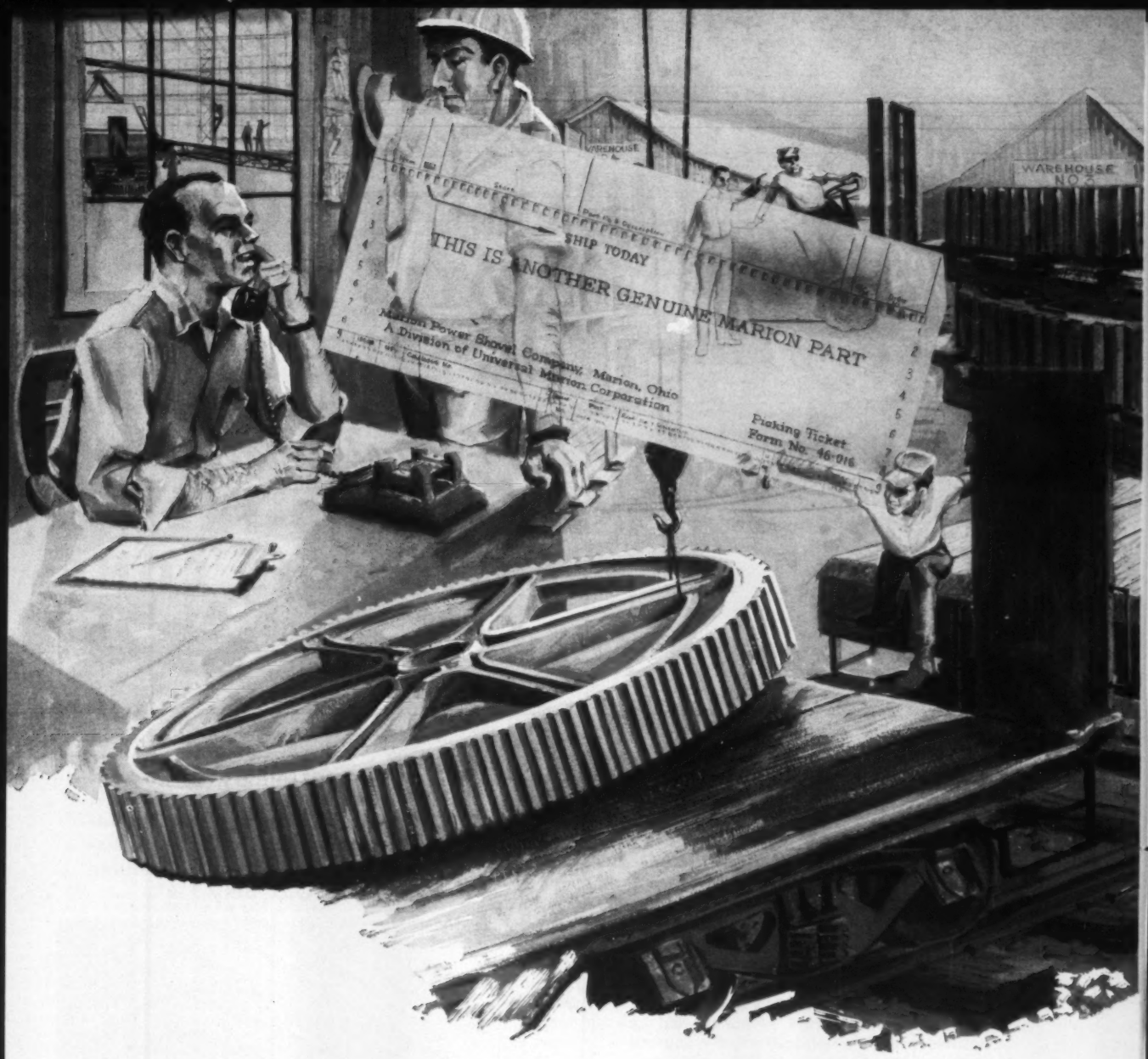

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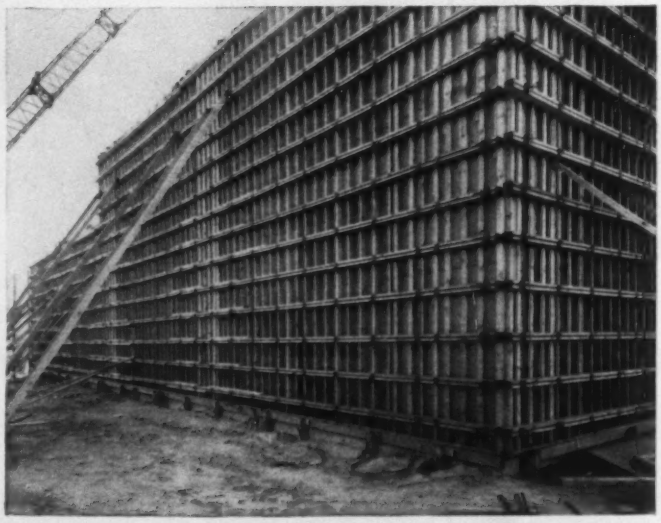

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Pacific Coast Office and Plant
2100 Williams St., San Leandro, Calif.

Continued from page 86

gas sys. $4,000,000. Kump, Masten, Hurd & Gwathmey, 325 Lytton Ave., Palo Alto, Calif., archts. CD 6/13/60.

HEAVY CONSTRUCTION—LB & CA

▲ **NEVADA**—State Hy. Dpt., Carson City, ROAD, **Whiting Brothers Constr. Co., Inc., and Stout Constr. Co.**, 1061½ W. Wyoming Ave., Las Vegas, Nev., CA **$2,459,368**, constr. portion of Interstate Primary and Secondary Hy. System, on Interstate Route 15, U. S. Hy. 19 and 466 and FAS Route 546, between 0.6 mi. North and 10.1 mi. north of Junction FAS 537, near Sloan, 10.641 mi., Clark Co., BA 4/10/61. CD 3/21/61.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento. Bids opened 4/12, ROADS,

Calif.—**Gordon H. Ball, Gordon H. Ball, Inc.**, 300 Camille Ave., Danville, Calif., LB **$3,735,293**, (5 bidders), grading, paving about 3 mi. four lane freeway, State Sign Rtes. 21 and 4, between ½ mi. south of Willow Pass Rd. and ½ mi. north of Sign Rte. 4 in and near Concord, Contra Costa Co.;

Calif.—**Fredrickson & Watson Constr. Co.**, and **Lew Jones Constr. Co.**, 873 81 Ave., Oakland, Calif., LB **$1,173,693**, (5 bidders), grading, paving and bridge, Frontage Roads, etc. to convert 2.2 mi. US Hy. 99 from Expressway to Freeway between Whitmore Ave. in Ceres and Latimer Ave. near Modesto, Stanislaus Co. CD 3/8/61.

▲ **MacDonald & Kruse Constr. Co.**, P.O. Box 398, Montrose, Calif., CA **$5,132,790**, Proj. No. 9, Third Unit, Los Cerritos STORM DRAIN to serve sections Lakewood, Bellflower and Long Beach, Lines A, B, C and D, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. BA 2/17, CA 4/4. CD 2/28/61, under LB.

BUILDINGS—LB & CA

▲ **Ernest Stettler & Sons**, Box 403, Logan, Utah **CA $1,912,000**, general contract STUDENT LIVING CENTER and Delta Phi FRATERNITY HOUSE, LOGAN, UTAH. Church of Jesus Christ of Latter Day Saints, 47 E. South Temple, Salt Lake City 1, Utah. BA 3/30, CA 4/7. CD 4/11/61, under LB.

▲ **Harrison International Co.**, 5137 N. E. 2nd St., Miami, Fla., CA shaft sinking and underground constr. POTASH PLANT, MOAB, UTAH. Texas Gulf Sulphur Co., 811 Rusk Ave., Houston, Tex.

▲ **Granite School Dist.**, 340 E. 3546 South, Salt Lake City 15, Utah, rejected bids Mar. 21, Skyline HIGH SCHOOL, SALT LAKE CITY, UTAH. LB **$3,974,000**. CD 3/29/61, under LB.

▲† **General Electric Co.**, River Rd., Schenectady, N. Y., LB **$8,007,798**, furnishing, installing eight 125,000-kva GENERATORS for Glen Canyon Power plant, ARIZONA, Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., BA 4/11/61. CD 2/27/61.

▲ **Wm. Simpson Constr. Co.**, 2401 Beverly Blvd., Los Angeles 57, Calif., CA **$2,522,000**, concrete COMMERCIAL STORE, 6060 Wilshire Blvd., LOS ANGELES, CALIF. Seibu Corp., 6060 Wilshire Blvd., Los Angeles, Calif. Welton Becket & Assoc., 10000 Santa Monica Blvd., Beverly Hills, Calif., archts. Don Douglas, 373 N. Western Ave., Los Angeles, Calif., engr.

▲ **Peter Kiewit Sons Co.**, 345 Kieways Ave., Arcadia, Calif., CA **$6,500,000**, Kahn OFFICE, First and "C" Sts., SAN DIEGO, CALIF. Irvin J. Kahn, 3010 Cowley Way, San Diego 17, Calif. BA 1/26. CD 2/3/61, under LB.

CANADA

BUILDINGS—BA

▲ **Ont., St. Catharines**—BA 4/27—St. Catharines General Hospital Bd. Governors, St. Catharines, 6 story, rein.-con. frame, masonry, brick HOSPITAL WING ADDN. $3,500,000. Plans deposit $50. Extended date. Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 10 Price St., Toronto, archts. Ralph C. Manning, 745 Mount Pleasant Rd., Toronto, engr. CD 3/28/61.

BUILDINGS—LB & CA

▲ **Burns & Dutton Concrete & Constr. Co., Ltd.**, P.O. Box 636, Edmonton, Alta., and **Poole Constr. Co., Ltd.**, 10503 109th St., Edmonton, Alta., CA **$2,210,000**, (2 bidders), TERRACE BLDG., DATA-PROCESSING CENTER, on Legislative grounds, EDMONTON, ALTA. Alberta Dpt. P. Wks., Parliament Bldgs., Edmonton, Alta. BA 3/16/61. CD 3/2/61.

PUERTO RICO

BUILDINGS—LB & CA

▲ **The Blythe Co. of Puerto Rico, Inc.**, P. O. Box 4632, San Juan, Puerto Rico, LB **$3,950,000**, 20,000 persons capacity rein.-con. SPORTS STADIUM, SAN JUAN, PUERTO RICO. San Juan P. Wks. Dpt., San Juan, Puerto Rico. BA 4/6. CD 3/16/61.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ Hawaiian Dredging & Constr., Ala Moana Blvd., Honolulu, Hawaii, **J. H. Pomeroy & Co., Inc.**, 755 Sansom St., San Francisco, Calif., U. S. A., and **S. Haunstrup & Co.**, Sydney, Australia, CA **$5,000,000** renovation 366 mi. of Mount Isa-Townsville RAILROAD to incl. prestressed concrete, precast concrete decking estimated 125 bridges and culverts, AUSTRALIA. Queensland State Govt., Brisbane, Australia. Al Yee (Park & Lee Assocs.), 1507 S. King St., Honolulu, Hawaii, archt. Ford, Bacon & Davis, Inc., 2 Broadway, New York, N. Y., U. S. A., engr. BA 3/1. CD 12/28/60.

(Proposal Advertisements see pp. 99 to 101)

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measures depth of overburden— quickly, accurately

The GEOCHRONE is a portable seismic unit intended for shallow subsurface explorations. Principle of operation is based upon the conventional seismic technique of timing shock wave propagation. In most cases a ten-pound sledge hammer is an adequate shock source for explorations down to 50 feet. Mild explosives can be used for deeper studies.

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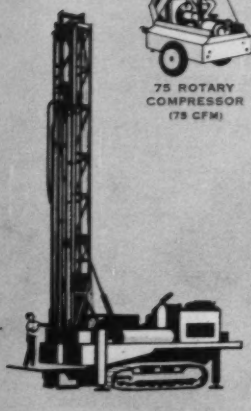

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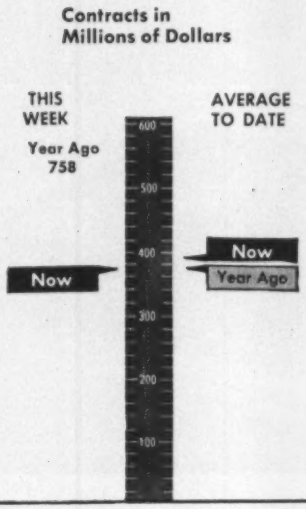
AIR TOOLS

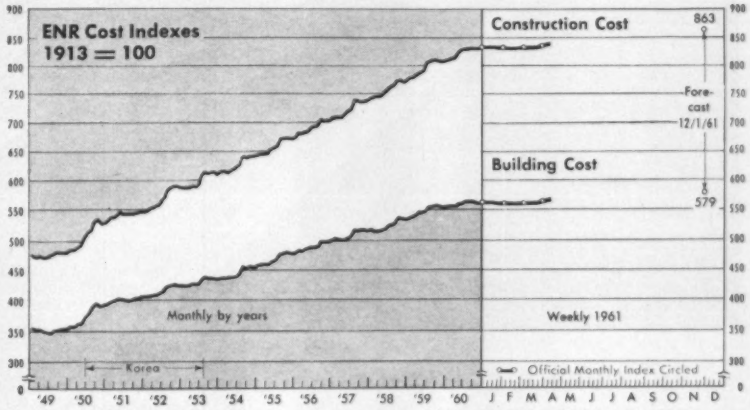
LE ROI

Division of Westinghouse Air Brake Co.
Sidney, Ohio

Construction Scoreboard

This Week . . .




ENR Cost Indexes 1913 = 100
Construction Cost
863
Fore-cast 12/1/61
Building Cost
579
Monthly by years
Weekly 1961
Korea
Official Monthly Index Circled
'49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 J F M A M J J A S O N D

ENR INDEXES (1913=100), 20-cities' average	Week of Apr. 13 1961	% Change from Mar. 16 1961	% Change from Apr. 14 1960
Construction Cost	840.11	+0.7	+3.0
Building Cost	567.32	+0.8	+1.8

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

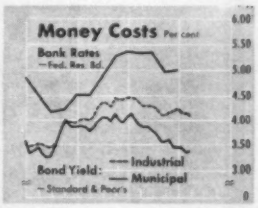
Contracts Awarded In 50 States By Type	This Week millions	Cum. 16 wks 1961	Chge '60-'61 %
All Heavy Construction	$457.5	$6,194.1	+0.2
By Ownership			
PRIVATE	214.7	3,103.9	− 7
PUBLIC	215.8	3,090.2	+ 9
State & Municipal	178.4	2,386.6	+10
Federal	37.4	703.6	+ 7
By Type of Work			
PUBLIC			
Waterworks	5.7	123.0	−15
Sewerage	21.1	216.5	+31
Bridges*	21.9	176.1	−42
Highways	71.7	1,058.5	+27
Earthwork, Dams & Waterways	17.0	208.5	+ 7
Buildings:			
Excl. Housing	36.5	722.7	+13
Housing	16.2	217.6	+43
Unclassified	25.6	367.4	− 6
PRIVATE			
Buildings:			
Mass Housing	113.2	1,393.7	−15
Commercial	80.6	681.9	+ 3
Industrial	44.7	895.1	+24
Unclassified	3.3	133.1	−58

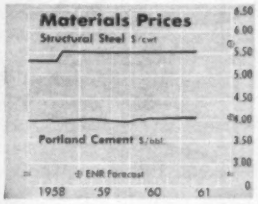
*Includes Private bridges

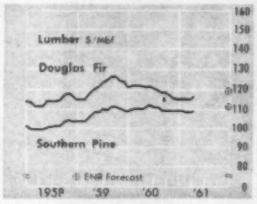
NOTE Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

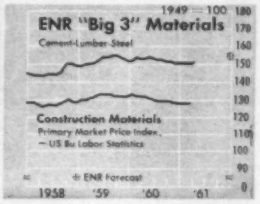
NEW CONSTRUCTION CAPITAL

	Week of Apr. 13 1961 millions	Cum. 15 wks 1961	Chge '60-'61 %
Corporate Securities	$ 35.2	$ 509.1	−38
State and Municipal:			
All Except Housing	126.6	1,900.4	+ 1
Housing	0	22.2	+63
Federal Loans	0.2	51.2	− 5
Federal Aid	0	0	0
Total Nonfederal	$162.0	$2,482.9	−10
Federal Appropriations:			
Projects in U. S.	0	1.0	....
Outside U. S.	0	0	0
Total New Capital	$162.0	$2,483.9	−10









ENR COST INDEXES IN 22 CITIES, 1913=100

City	Construction Cost April 1961	Construction Cost Percent Change from last Month	Construction Cost Percent Change from last Year	Building Cost 1961	Building Cost Percent Change from last Month	Building Cost Percent Change from last Year
Atlanta	652.78	0	+3.1	504.08	0	+1.3
Baltimore	759.18	+0.7	+0.6	562.90	+0.5	+1.5
Birmingham	674.37	0	+3.3	527.38	0	+2.1
Boston	862.52	+1.1	+3.5	576.09	−0.1	+1.8
Chicago	909.46	+0.5	+1.0	584.52	+0.7	+0.5
Cincinnati	846.69	+1.1	+3.8	552.47	+1.6	+2.0
Cleveland	946.12	0	+2.8	563.27	0	+1.8
Dallas	640.32	0	+6.0	527.29	0	+7.3
Denver	756.22	0	−0.2	555.69	+0.4	+2.5
Detroit	963.54	0	+2.0	605.32	0	+1.1
Kansas City	837.88	+3.1	+4.9	561.98	+1.5	+1.7
Los Angeles	901.68	+0.5	+3.6	562.18	+0.8	+1.1
Minneapolis	897.84	0	+4.4	575.71	0	+1.1
New Orleans	654.27	0	+1.5	507.84	0	−1.3
New York	1,060.60	+0.3	+4.9	664.76	+0.4	+3.1
Philadelphia	830.49	0	+5.1	589.86	0	+2.2
Pittsburgh	885.14	0	+3.2	625.80	0	+2.8
St. Louis	900.86	0	+2.4	581.55	0	+0.5
San Francisco	884.26	+0.7	+4.2	561.47	+1.2	+2.4
Seattle	885.07	+0.2	+3.0	513.17	+1.2	+1.4
U. S.—20 Cities' avg.	837.58	+0.4	+2.9	565.19	+0.4	+1.8
Montreal	648.79	0	+2.9	464.48	0	+0.7
Toronto	687.60	0	+3.3	489.73	0	+0.4

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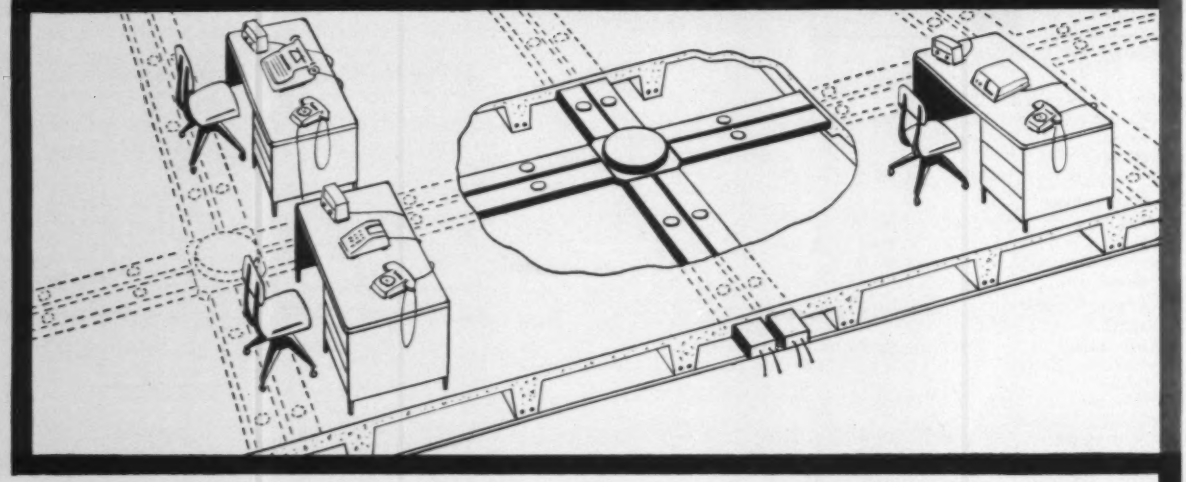
(Electrified Concrete Joist Floors)



Office planning becomes more efficient when you specify low-cost R/C Duct Floors. This underfloor electrical distribution system makes it possible for every desk or piece of office equipment—including telephone, intercom, and business machines—to be serviced directly from floor outlets underneath. When offices or desks are rearranged, partitions moved or added, electrical outlets are always readily available. Unused outlets can be neatly closed, and reserve service outlets utilized without digging up floors or running exposed conduit or extension cords over floors, walls, or ceilings.

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5-61

Mass. Pike Extension: What Now?

Bonds to finance extension of the Massachusetts Turnpike into Boston fell on the market with a dull thud last week. Investors rejected the $175-million offering, thereby upsetting construction plans for the turnpike and severely shaking plans for the $150-million Prudential Center in Boston.

Fate of the Prudential Insurance Co.'s commercial center, which already represents a $13-million investment, is tied to that of the turnpike by real estate agreements. The authority holds an easement on a corner of the property. Here the road would be enclosed in a tunnel and the buildings erected over it. If the road is not built, design changes obviously would be required.

Key to inability to sell the bonds was the 5% ceiling imposed on authority borrowing. A contributing factor may have been doubts expressed by three university professors on the extension's ability to pay its way. Their printed report was widely circulated among investment houses and large institutional investors.

Investment advisors for the authority still maintain the bonds can be sold, and they along with the authority's traffic and design engineers, reject the validity of the professors' charges.

A hard appraisal of bonds' chances comes this week when Gov. John A. Volpe meets with Chairman William F. Callahan of the Turnpike Authority and representatives of F. S. Moseley & Co., managers of the investment syndicate. They'll try to determine the answers to these questions: "Is the extension dead? If not, when will it start?"

If the road plans are scuttled or if timing is in doubt, Governor Volpe is prepared to request legislation for the plan he first pushed and later abandoned —a freeway to Boston's proposed Inner Belt highway. From the Inner Belt, a link would be constructed into the Prudential Center about one-half mile away.

Alternatives are legislation permitting the authority to pay more than 5% on its borrowing, or placing the state's full faith and credit behind the authority's bonds. The governor opposes state backing for the bonds, but has not formally declared himself on the interest-rate ceiling revision. It's reported unofficially, however, that he is also opposed to a change in the authority's interest ceiling.

Choice of a freeway is not altogether a happy one from a political standpoint because it might require a boost of one-half cent per gallon in the gasoline tax.

Postponement of the bond sale brought a chilling announcement from Prudential Insurance Co.: "Withdrawal of the turnpike bond issue from the market has raised a considerable number of technical, legal and construction questions which have to be studied . . .

"We have requested that the Boston Redevelopment Authority withhold its decision pending re-examination by Prudential of the application now on file, which may have to be amended or withdrawn."

Prudential must know whether or not a highway will be on or off the property in order to make accurate decisions on land usage and design.

These decisions tie in with the contract between the company and the Boston Redevelopment Authority. Any agreement must be ruled upon by Massachusetts' Supreme Judicial Court. Moreover, Prudential wants a decision before the court starts its summer recess. When the foundation work was completed last summer, activity was halted. The company said it would not invest further in the project until a contract was written, submitted to public hearing and ruled upon by the court as to constitutionality. Any additional delays resulting from turnpike entanglements can prevent early writing of a contract, and the company fears it may have to wait until fall for a court decision. Conceivably, a reactivation of the project could be thrown over to next spring, a delay that Prudential wants to avoid.

Following Prudential's announcement that it asked for a delay on its application before the Redevelopment Authority, Boston's Mayor John F. Collins requested that the company reconsider the move. An answer from the company is expected either this week or early next week.

At issue is whether the site qualifies as a blighted area, thus permitting inclusion of commercial buildings on the tract. On this decision hinges the legality of a tax concession to Prudential, which is to be provided in the Authority-Prudential contract.

Although the project promises to revitalize Boston's economic life, some real estate interests oppose the tax concession. Some sources even suspect that these same interests may have been working hard to discredit the turnpike bond issue in the hope that the ensuing confusion would eventually block completion of the center. John E. Powers, president of the State Senate, plans to investigate the situation. He says, "It has all the appearances of a preconceived plot to boycott the Turnpike Bonds and destroy the Prudential Center. The unexpected rejection of a large bond issue like this does not just happen."

Bids In on Glen Canyon Generators

The Bureau of Reclamation last week received seven bids for eight 125,000-kva hydro-generators at the Glen Canyon power project on the Colorado River at Page, Ariz.

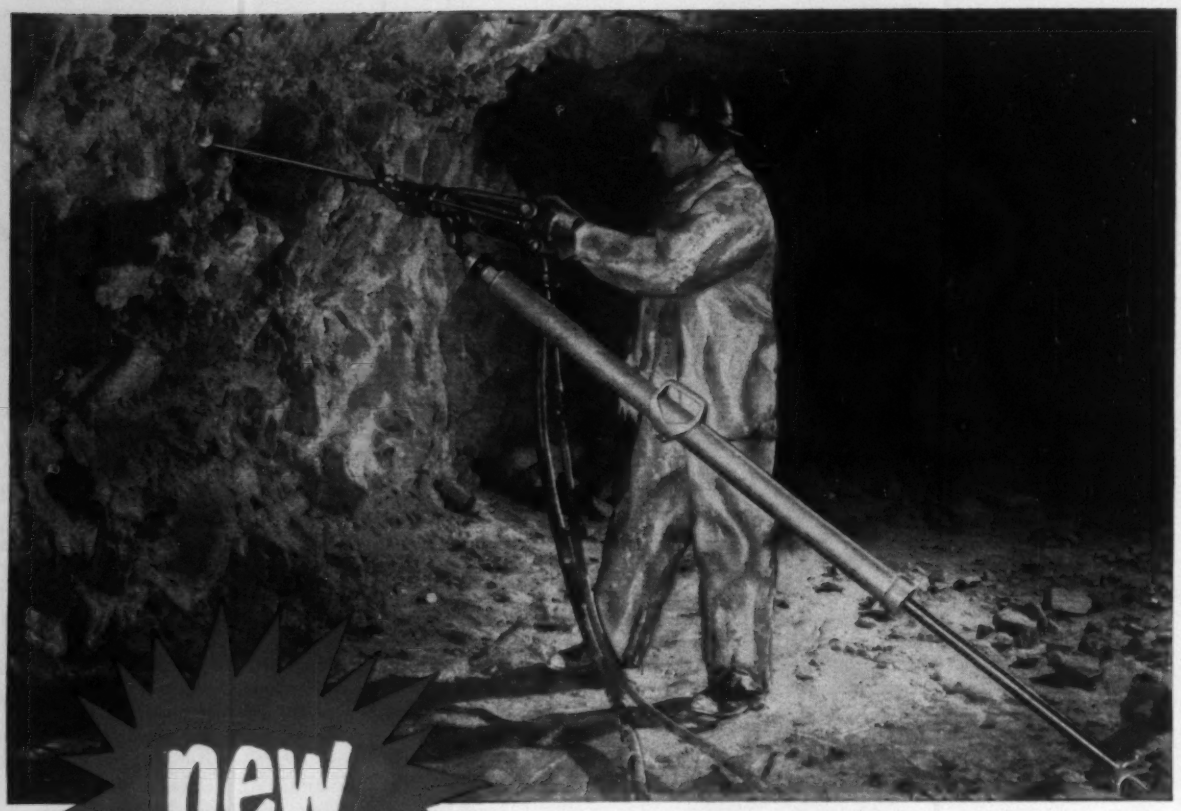
The three low bidders on an unevaluated basis are Fairbanks Morse & Co., Chicago, $7,467,705; ASEA Electric, Inc., New York City, $7,895,000; and General Electric Co., Schenectady, N. Y., $8,007,798. All three bids are responsive technically, and one of the three is expected to win the contract after Buy American price differentials are considered.

The two lowest bidders—Fairbanks Morse and ASEA—propose manufacturing the generators in Europe; Fairbanks Morse entirely in Italy, and ASEA, 91% in Sweden and 9% in the U.S.

But General Electric, the third lowest bidder, would manufacture entirely within the U.S., with 97% of the production centered at Schenectady, the remainder at Waynesboro, Va. GE therefore is eligible for maximum Buy American price differentials. Because Schenectady is a labor surplus area, a 12% price differential applies. That would make GE the lowest of the three bidders.

Other bidders and their prices were Westinghouse Electric Corp., Pittsburgh, $8,725,496; English Electric Export & Trading Co., Liverpool, England, $8,929,130; Allis-Chalmers Mfg. Co., Milwaukee, $10,803,300; and Elliott Co., division of Carrier Corp., Syracuse, N. Y., $10,870,460.

Of these four, English Electric would manufacture entirely in England. The U.S. companies would produce solely in the U.S.



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The JR-300 is a lightweight, completely integrated rock drill and flexible air-feed leg unit designed for faster, easier drilling in any position. Three feed legs are available with this new machine: conventional single-acting, telescopic and a new double-acting automatically retractable feed leg. All controls are conveniently grouped on the backhead and the feed handle has a two-position button for feed release or leg retraction which reduces steel changing time and speeds setups.

The same fine performance and design features are available in the new R-300 Stoper and J-300 Jackhamer, simplifying parts inventory where all three types of machines are used. For a new high in drilling speed and economy, ask your Ingersoll-Rand representative for a demonstration of the new JR-300 Universal Jackdrill—or send for a copy of Bulletin 4219 today.

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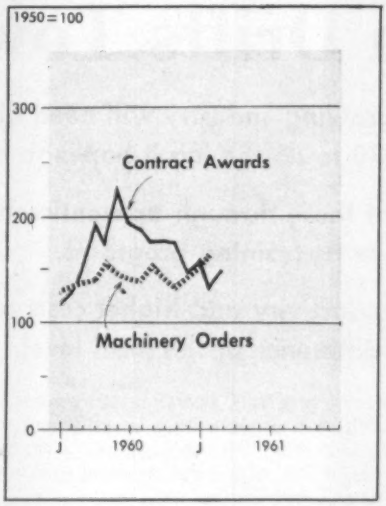
Machinery Orders Rise 5%

New orders for construction equipment rose again in February, according to the McGraw-Hill Economics Department's index. The value of 164, based on average monthly dollar volume in 1950 as 100, represents a gain of 5% over January and an 18% jump over February 1960.

It was the highest value for February since 1957, when the index was at a record 176. Next highest value for a February was 170 in 1956.

The Construction Equipment Orders Index, based on order volume reported by a number of equipment manufacturers, reflects increased business coming in to manufacturers from their distributors. Dealers are apparently experiencing a marked rise in sales and inquiries, or they are pinning their hopes on the rise in heavy construction contractors' new business.

Contract awards slipped in February to only 132, according to ENR's Contract Award Index. This index is based on 1950 as 100. The February contract value is also off from a year ago, whereas January's index of 162 was sharply higher than January 1960.



March volume, however, bounced the Contract Award Index up to 149, but the rise wasn't sharp enough to prevent the month's volume from falling 4% below the year-ago pace. For the first quarter, heavy construction contractors' new business was up 6%.

Wall Industry Maps '61 Expansion

Burdened with stiff competition, the profit squeeze and growing pains, representatives of the still-young metal curtain wall industry flexed their muscles for a grab at an estimated $400-million market for 1961.

The metal curtain wall makers reviewed design, promotional and marketing problems facing their industry and then outlined a basic improvement program last week at the 23rd annual convention of the National Association of Metal Manufacturers in New York City.

Top on the list of scheduled improvements was the need for better design and installation methods. As pointed out by Thomas Creighton, editor of PROGRESSIVE ARCHITECTURE, standardization without monotony, modular coordination and prefabrication are typical areas most in need of study. He also gave examples of application difficulties to be avoided: water leakage through joints, expansion problems, window framing, and fabrication accuracy.

Mr. Creighton and another speaker, Wayne F. Koppes, consultant to the Metal Curtain Wall Division of NAMM, recommended these steps to help solve design problems:

- Encourage more collaboration in the exchange of information between members of the Metal Curtain Wall Division.
- Increase efforts to complete and periodically revise the Metal Curtain Wall Manual.
- Promote better wall design by sponsoring annual design competitions in architectural schools and by giving annual awards of merit for completed metal curtain wall buildings.
- Prepare films and other educational material on design and installation of metal curtain walls for use in architectural schools.

John P. Jansson, manager of market development of Olin's Metal Division, said that 15% of all nonresidential exteriors erected last year were clad in metal curtain walls. He predicted a rise to 19% for this year and to 25% by 1963.

With a rebuilding market of 40% of the total spent on new buildings, David S. Miller, vice president of marketing, Kawneer Co., was confident that the total 1961 market for the metal curtain wall industry would be around $400 million. Mr. Miller and Asher B. Etkes, New York City public relations consultant, said the industry will need better public relations in general, and especially closer communication with architects if it is to realize this potential.

Anything Can Happen

First flood, then fire, now legal action hits Mayfield

The trouble-plagued Mayfield Dam project on the Cowlitz River near Tacoma, Wash., is back in court, brought there by Perini Corp. of Framingham, Mass. Perini, which has the $10-million contract to complete the project, wants Pierce County Superior Court to fix a new completion date and decide whether the company must continue work while progress payments are withheld by the owner, Tacoma City Light. In an earlier action, Perini filed claims with the city clerk for more than $2 million in additional costs.

Perini argues that certain phases of the job cannot be performed because the city has not furnished necessary designs and instructions. The company also contends the scheduled completion date of July 1, 1962 is no longer realistic because of changed conditions resulting from floods, slides and fire (ENR Dec. 22, 1960, p. 44).

Perini's action may have opened the door to determining legality of the entire project. Last November, voters approved an initiative barring construction of all dams over 25 ft high on the Cowlitz River and other streams tributary to the Lower Columbia, with certain exceptions.

Two Perini subcontractors, Ivan T. Sampson and Robert R. Groves, now contend Perini's contract is invalid because of the new law. The city denies this, arguing the project was authorized by the Federal Power Commission prior to passage of the initiative. So far, city attorneys have not decided whether to accept the argument as part of the case or request its dismissal. The Public Utility Board, however, indicates it wants the question resolved by the court before the City sells bonds to finance another dam on the river at Mossyrock.

First contract for $10.8 million was awarded in 1955 to L. F. Dixon-Arundel Corp. After a series of court fights over a state fish hatchery that would be flooded by construction of the dam, Tacoma terminated the contract. The project then was 40% complete at a cost to the city of $6.7 million.

Early in 1960, Perini won the $10-million completion contract. Last December, two penstock elbows were jolted by slides and the powerhouse cofferdam flooded. Right after the slides, fire destroyed the project's concrete batching plant. Powerhouse damage estimated at $100,000 set the job back 60 days.

Construction Drifts Toward a Labor

- **The nation's fastest growing industry will need about two million additional skilled workers by 1970 to do the job it hopes to do.**
- **It will get only 10% of these through apprenticeship unless a big push is made to expand and improve its training programs.**
- **Faulty work, lower productivity and higher costs are apt to be part of the price tag on apathy and indifference at the local level.**

By Charles J. Harding

The time may come when the law of supply and demand will give a skilled construction worker who knows his stuff about any wage he wants.

The construction industry is growing by leaps and bounds, even in terms of constant dollars. Despite the herculean efforts of some, it is not training workers fast enough to meet its growing needs. As a result, the industry is headed for a manpower deficit of some two million skilled workers by 1970 unless it takes corrective action soon. Even now, in a period of recession and unemployment, some contractors complain about a dearth of good mechanics who can give a fair day's work for a fair day's pay.

Last week a 20-year-old apprentice bricklayer from Local 23 in Hackensack, N. J., helped put the spotlight on this challenge to the industry. He is Arthur H. Gray, Jr., a Whyte Construction Co. employee, who won the title of 1961 Champion Bricklayer Apprentice in Detroit, Mich., at the annual national apprenticeship competition of the Bricklayers, Masons and Plasterers' International Union.

The competition is essentially a public relations gesture. It not only seeks to encourage and inspire the young men who are becoming tomorrow's craftsmen, but it also seeks to stimulate interest in apprenticeship generally and to promote a wider understanding of what leaders in apprenticeship are trying to do.

But even the bricklayers, who have one of the best apprenticeship programs of all the building trades, are not doing too well on quantity. The number of registered apprentices they have in training has been declining. And their present programs, operating at current levels, will produce only an estimated 22% of their 1970 needs. None of the other trades, except the electrical workers, will do even that well.

As in the case of so many other industry labor problems, it is easier for construction people to agree on the nature of the manpower problem than on its causes and its cures.

Few, for example, will argue the fact that the lifeblood of the construction industry is the skills of its mechanics. Contractors, whether union or nonunion, can prosper only so long as they can find the skills to perform the services they sell. Unions can flourish only so long as they include within their ranks the skills that are essential to protect their respective jurisdictions. Each new technique, each new material, adds to the challenge. And the challenge involves the upgrading of present journeymen as well as the training of new ones.

Members of the industry, too, generally accept the government's manpower figures and its predictions on future needs.

Last year, a little over $75 billion was spent on construction, including maintenance and repairs. This volume required the services of three million skilled construction workers.

The level of construction activity is expected to increase 40 to 50% during the present decade because of population growth and shifts, and because of heavy outlays on public works. To handle this extra workload, the construction industry by 1970 will need 1.2 million more skilled workers than it now has. In the meantime, it will also have to find 1.1 million new workers simply to replace the skilled mechanics who die, retire or shift to other work.

Where will they come from?

The U.S. Labor Department says that only 10% of the additional journeymen needed will be provided through apprenticeship unless the present situation is drastically improved. The figures vary from trade to trade, ranging from 36% for the electrical workers down to less than 1% for operating engineers.

The rest of the workers will come in through the back door. Many of them will be trained haphazardly, if at all. Odds are they'll lower rather than improve productivity.

This does not mean that the construction industry has not made vast and significant strides in training. About 60% of all registered apprentices are in the construction industry. Some trades in some areas have excellent programs, others do not. At the end of last year, the industry had 97,824 registered apprentices in training in 12 trade groups—a figure 12,481 below what it was three years ago.

There are, in addition, some trades, such as lead burners and field erection boilermakers, with too few apprentices to add much to the total. And there are an unknown number of workers being trained privately, informally or unilaterally in programs not officially recognized or approved.

There is nothing mysterious or "federalized" about the term "registered apprentice." It merely means that the apprentice is being trained under a formal apprenticeship system in a program that a particular segment of the industry has itself voluntarily developed and which it considers adequate to its needs.

The system is a joint endeavor and is one in which employers and unions at the national and local levels, and federal and state apprenticeship bureaus and vocational agencies, are cooperating.

Labor and management, through joint apprenticeship committees formed by trade units at the national level, have developed—and periodically up-

***Charles Harding**, ENR's Labor Editor, is a journeyman at reporting problems in apprenticeship.*

Shortage

date—national apprenticeship standards for their respective trades. There are now national standards for 19 of the apprenticeable trades within the jurisdiction of 11 of the building trades unions. They call for simultaneous on-the-job and related classroom instruction, and set rather detailed minimum standards as recommendations for the conduct of local training programs.

The national standards are registered with the U. S. Labor Department's Bureau of Apprenticeship and Training. Local Joint Apprenticeship Committees use them in developing their own programs, which are registered with the appropriate state apprenticeship agencies. It is apprentices in programs such as these that meet the requirements of the Davis-Bacon Act, for example.

The local JAC's, which also operate on a trade basis, utilize the help of their national JAC and of appropriate federal and state apprenticeship and training agencies. But the training operation each conducts is its own show. The local JAC sets up, finances, operates, and supervises its own program, geared to local needs. It selects the apprentices and attends to all the various details.

At the beginning of this year there were 3,992 local construction JAC's at work around the country. The number has not changed substantially since 1956. Bulk of the committees are still concentrated, however, in the areas of four trade groups—trowel trades (bricklayers), carpenters, electrical workers, plumbing and pipefitting trades.

The results are as good or as poor as the efforts and the foresight of the local JAC's.

In theory, the national program provides each of the skilled trades and contractor groups using it with a constant inflow of well and uniformally trained workers in sufficient quantities and with the necessary training to meet the demands of the present and of the foreseeable future.

Why is the program failing to do the job it is supposed to do?

Some critics point to the peaks and valleys and seasonal nature of construction employment as factors that deter the use of apprentices and that make it difficult to plan ahead.

Others say local unions put their selfish interests ahead of those of the industry and monopolistically limit the number of apprentices in order to create an "artificial" labor shortage that protects their jobs and their bargaining power.

Contractors are often accused of apathy and of failure to cooperate—and unless apprentices are hired, the program collapses.

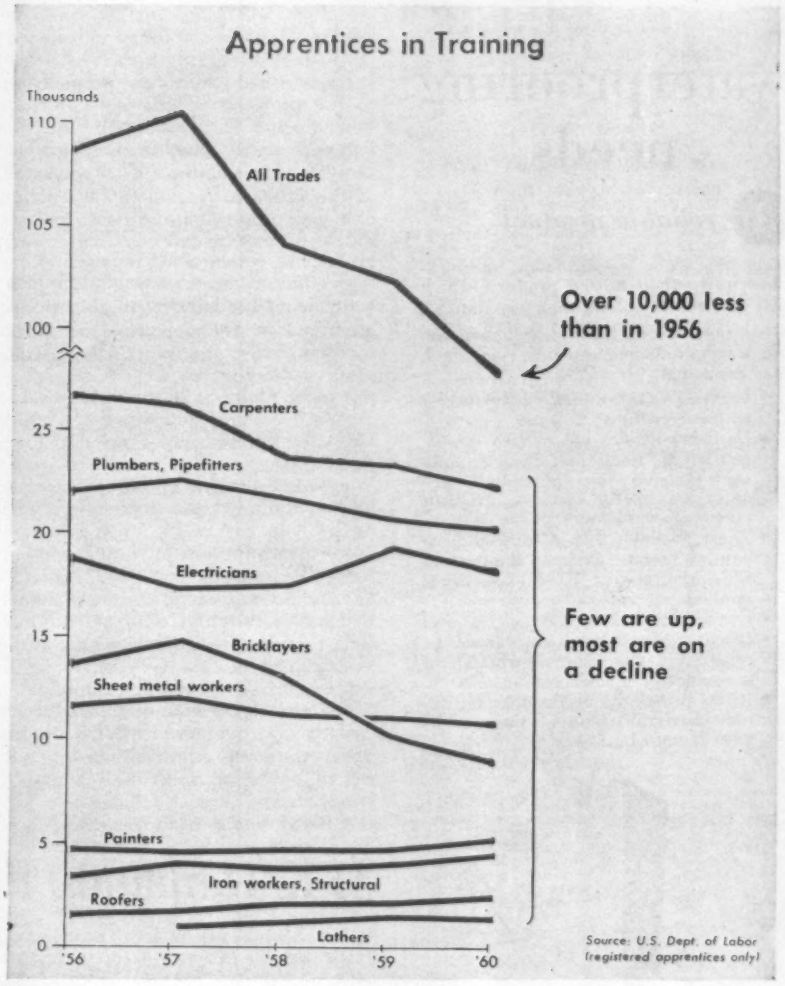
Small contractors are apt to cite the uncertainty generated by tough competition and the lack of continuity in their work as stumbling blocks to apprenticeship participation. Some employers say the starting pay of apprentices—generally 50% of journeymen's pay—is too high and that apprentice training is too costly, too unproductive. Others complain that all unions should contribute to training costs as standard practice.

Those at the national level who are promoting apprenticeship and journeyment training, however, emphasize this point: "It is costly to train—but more costly not to train."

Some of the programs, the record indicates, are loosly run, inadequately financed, poorly supervised or even outmoded.

In some cases, the selection of apprentices is unsound. It is generally believed that these internal problems largely contribute to the wasteful fact that nearly half the apprentices taken into construction programs drop out before completing their training.

The problems of attraction, selection and retention of apprentices promise to become more serious as the nation's job structure and workforce grows and changes. More and more industries will be looking for workers with at least a high school education. Fast-growing industries that depend on skills, like



APPRENTICESHIP is slowing down as the demand for skills increases.

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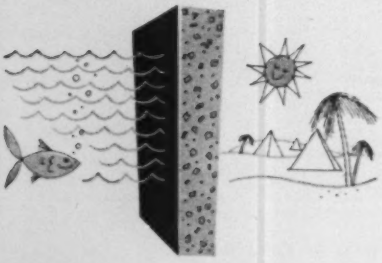

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construction, will be up against increasingly stiff labor market competition in their search for promising recruits.

Industry and government people close to the problems of training construction workers are disturbed by the faltering pace of apprenticeship—but they are not pessimistic. They say many of the problems, including local ratios of apprentices to journeymen, can and should be met by collective bargaining, given time, patience and understanding.

In the meantime, they are urging members of the industry to give special attention to the following needs to speed up the process of eliminating some of the bugs:

• **More local JAC's.** Many communities, large enough to support JAC's in certain trades do not have them.

• **Better financing.** A negotiated, jointly administered training fund built up by employer or by union and employer contributions is the procedure that is generally recommended. Forms of standard clauses and trust agreements that meet Landrum-Griffin and Internal Revenue Service requirements are available. The funds can be used for both apprentice and journeymen training.

• **Active cooperation of more contractors.** It is a common belief that negotiated employer contributions assure better and more widespread employer cooperation.

• **Better qualified applicants.** A systematic selection procedure recommended by the plumbers' national JAC may serve as a model for other trades. The lathers' JAC has adopted a similar one and has included a suggested formula for use by local JAC's in determining how many apprentices should be trained.

• **Closer supervision of apprentices and improved instruction.** The hiring of apprentice "coordinators" who act as managers of local JAC programs has strong support and is gaining ground. There are now about 209 of them at work.

• **More training for journeymen to keep them abreast of new developments.** JAC's are being pushed as the best machinery for journeymen training.

National employer associations, international unions and government officials are working hard on many fronts to help local labor and management groups make the national training program really work. Apprenticeship contests, like those sponsored by the bricklayers, plumbers and pipefitters, and sheet metal workers, are part of the gigantic promotional effort. So, too, are the five regional and three state apprenticeship and training conferences scheduled for this year.

The system, the mechanics and the necessary assistance are all available. But the sobering fact remains that not enough use is being made of them and a serious shortage of skilled and productive workers still looms ahead.

JFK Demands Equal Job Rights

President Kennedy has assured contractors doing business with the federal government that his new anti-discrimination committee will become neither a gestapo agent nor a decorative mannequin.

Addressing the 28-member committee at its first meeting last week, the President said his Executive Order creating the committee is not intended as "a harsh or unreasonable mandate." He called for full compliance with the order, but expressed the hope that the committee can accomplish the goal of nondiscrimination by moving forward with fairness and understanding and "in a generous spirit of cooperation."

The implication is that he expects the committee to use its rather powerful legal and economic sanctions—but only as a last resort.

Under the order issued in early March, employers working under federal contracts are legally committed to avoid discrimination in employment, including selection for apprenticeship and training, based on race, creed, color or national origin. Violators are subject to contract cancellation and blacklisting.

Vice President Lyndon B. Johnson heads the committee. But Labor Secretary Arthur Goldberg, who has all the resources of the Labor Department at his command, has general supervision and direction of the committee's work.

The committee has formed several subcommittees to handle special problems. One subcommittee, headed by AFL-CIO President George Meany, was given the task of working on union discrimination, particularly in the skilled trades.

The committee plans to meet later—and separately—with union and contractor groups.

There were 110 complaints of discrimination before the committee when it held its organization meeting, according to Mr. Johnson. He said the complaints have been turned over to the contracting agencies on whose work they originated for investigation and appropriate action.

Labor in Brief

• **The good and the bad**—Although construction employment has just made its biggest March gain since World War II, the industry's unemployment rate for the first quarter of 1961 averaged 22.1%, according to the U. S. Labor Department. The March gain was 200,000, pushing employment in contract construction to 2,460,000. Average first quarter unemployment rates for previous years were 18.8% in 1960, 14.4% in 1957.

• **No dove of peace**—AFL-CIO industrial union leaders last week accused the building trades of widening and perpetuating the rift between craft and industrial unions. At an informal caucus in New York, they decided to increase the pressure for swifter federation development of new arbitration machinery for settling inter-union disputes.

• **Peace Corps adviser**—President Kennedy has named C. J. Haggerty, president of the AFL-CIO Building and Construction Trades Council, as a member of the National Advisory Council for the Peace Corps. The council is supposed to give the Corps "guidance and counsel" in its development.

• **Union shop**—Twenty professional, subprofessional and nonengineering employees of the Montana Highway Commission are trying to prevent enforcement of a union shop clause in a labor contract between the commission and a local of the American Federation of State, Municipal and County Employees. They have been denied an injunction but intend to challenge the contract in court.

• **Jurisdiction**—A jurisdictional dispute between iron workers and sheet metal workers over the installation of roof decking produced pickets at a department store project in Louisville, Ky. Work was not stopped and the dispute was referred to the National Joint Board for the Settlement of Jurisdictional Disputes.

• **Prevailing wages**—A prevailing wage measure similar to the federal Davis-Bacon Act is now before the Pennsylvania legislature. The bill would require the payment of minimum wages, as determined by the Secretary of Labor, on all state and local projects in excess of $2,000.

• **Collective bargaining**—New hourly wage increases of 20 cents in a one-year contract or of 45 cents in a two-year contract are among the demands of six building trades now negotiating with the Associated General Contractors of Jacksonville, Fla. Contractor resistance is reportedly strong.

• **No wage increase**—New labor contracts without wage boosts have been reached with cement finishers, lathers and plasterers in Wheeling, W. Va., and with cement finishers in Steubenville, Ohio. Bargaining stalemates with other trades have produced mass work stoppages throughout the Ohio Valley. The Ohio Valley Builders' Exchange reports it is trying to hold the line on wages.

• **Powell invites complaints**—The House Education and Labor Committee has set up an investigating unit in New York City to receive complaints against union and employer practices, including exploitation, racketeering and discrimination. Committee chairman Adam Clayton Powell (D., N. Y.) said investigations will also be made in California and Chicago and that present response is strong.

• **Supports no-strike pledge**—The Silver Bow Building and Construction Trades Council in Butte, Mont., has voted unanimously to support the no-strike-on-missile-base policy of the AFL-CIO Building and Construction Trades Department. The policy statement was adopted at the department's Executive Council meeting in Miami in February (ENR Feb. 23, p. 91).

• **Deferred increase**—Painters in western Washington received a 15-cent wage increase April 1. This is the last installment due under a three-year contract and brings the journeymen scale to $3.61½ an hour, plus 12 cents in employer contributions for health and welfare.

• **A 10-cent increase**—A new labor contract signed with plumbing and heating contractors last week gives plumbers and steamfitters in Richmond, Va., a 10-cent wage increase, raising their scale to $3.60. The term of the contract extends through Aug. 31, 1962.

OFFICIAL PROPOSALS

Bids: May 4, 1961

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on May 4, 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 570, BEAR STREET TO CLINTON STREET, NEW PROJECT NO. 1-690-3(1)214, OLD PROJECT NO. 1-1139(1), ITEM 57B, CITY OF SYRACUSE, ONONDAGA COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-180.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. Earle E. Towlson, District Engineer, New York State Department of Public Works, 333 East Washington Street, Syracuse, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposals will be made only in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $32,975.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1750.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF
PUBLIC WORKS

Bids: May 19, 1961

Board of Education
Bureau of Construction

Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT The Deputy Superintendent of Schools, Office of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York will receive applications for prequalifications from contractors who may wish to submit bids for the proposed hereinafter specified contracts. For the general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures of: Public School 154, West 127th Street and Eighth Avenue, Borough of Manhattan.

The prequalification application form must be secured at the Office of School Buildings, Bureau of Construction, Room 407, 42-15 Crescent Street, Long Island City 1, New York and submitted to the Deputy Superintendent of Schools at the same above address.

Bids when advertised, will be received only from prequalified bidders.

The time for submitting prequalification applications by contractors will expire on Friday, May 19, 1961.

Joseph R. Weiss
Deputy Superintendent of Schools
Dated: April 13, 1961

OFFICIAL PROPOSALS

Bids: April 27, 1961

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, CANAL LAW, and special provisions for projects financed with Federal Aid Funds, sealed proposals w'll be received until ten-thirty o'clock A.M., eastern standard time, on the 27th day of April 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, F. J. FULLER, District Engineer, 353 Broadway, Albany 1, New York						
Albany (Rte. 85)	FAC 61-6 FARC 61-25	City of Albany: Crosstown Rte. Art. Highway, (Krumkill Rd. to Washington Ave.) Slingerlands-Albany, S.H. 5237 Proj. U-392(12)	1.96 (4.59 Acc.)	9" Cem. Conc. Pavt., 2 @ 24' Var.= 1.41 Mi. Grad., Drain., Misc. Work = 0.55 Mi., Acc.= 1.91 Mi. Cem. Conc. Pavt., 2.11 Mi. Asph. Conc. Ty. 1A & 0.57 Mi. Grad., Drain., & Misc. Work, H.G.S. I-Beam, 4 Sps., 193.5' Tot., H.G.S. Twin Comp. I-Beam 3 Sps. Ea., 142.02' Tot., 4 H.G.S. Comp. I-Beam, 4 Sps. 187.70' Tot., 5 Sps. 250.81' Tot., 5 Sps. 396.49' Tot., 2 Sps. 139.35' Tot.	$275,000 Plans $10	$5,037,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee St., Utica 1, N. Y.						
Herkimer (Rte. 28)	R.C. 61-49	Stone House-Indian Castle, S.H. 8417; Little Falls-Montgomery Co. Line, S.H. 831	3.19	Asphalt Conc., Type 1A	$7,100 Plans $5	129,000
Madison (Rte. 13)	FARC 61-56	New Woodstock-Cazenovia, S.H. 8024, Cazenovia Vill. Pt. 1, S.H. 5675, Cazenovia Vill. Pt. 1, S.H. 5675 Proj. S-54(2), F-470(20)	5.25	Asphalt Conc. Ty. 1A = 5.23 Mi. Misc. Work = 0.02 Mi.	$45,000 Plans $5	815,000
Oneida, Herkimer, & Madison (Rtes. 274, 12C, 28, & 46)	R.C. 61-43	Holland Patent-Frenchville, Pt. 1, S.H. 1545; Whitesboro-Trenton, S.H. 5325; Herkimer-Middleville, S.H. 460; Middleville Vill. S.H. 869, Oneida-Munnsville, Pt. 2, S.H. 1217	....	Tree Removal	$500 Plans $5	9,000
DISTRICT No. 3, E. E. TOWLSON, District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga (Rte. 34)	FARC 61-53	Fleming-Scipio, Pt. 2, S.H. 1327; Fleming-Scipio, S.H. 753 Poplar Ridge-Fleming, S.H. 5244; Fleming-Auburn, S.H. 5012; Fleming-Auburn, S.H. 5012 Proj. F-1155(2), S-873(2)	6.86	Asphalt Conc.= Ty. 1A	$55,000 Plans $5	990,000
Cayuga (Rte. 38)	R.C. 61-42	Victory-North Victory, S.H. 8407	4.06	Asphalt Conc., Type 1A	$12,000 Plans $5	219,000
Onondaga (Rte. 31)	FARC 61-58	Weedsport-Jordan, Pt. 2, S.H. 5630; Jordan Vill.: No. Main St. S.H. 1505; Jordan-Baldwinsville, Pt. 1, S.H. 1506 Proj. F-185(6)	4.15	Asphalt Conc. Type 1A; Twin Reinf. Conc. Closed Box Br. 38.1' Sp., Twin Reinf. Conc. Open Box Br. 27.3' Sp.	$50,000 Plans $5	916,000
Oswego (Rte. 3)	R.C. 61-48	Mexico-Selkirk State Park, Pts. 1 & 2, S.H. 8458; Port Ontario-Jefferson Co. Line, S.H. 8420	14.78	Asphalt Conc. Type 1A	$40,000 Plans $5	709,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe (Rte. 47 & Int. Trg. Rte. 490)	FITS 61-12 FATS 61-13	Interstate Rte. Conn. 580 (FISH 56-9 & FISH 58-16) Rochester-Bushnell Basin, Pt. 2 & 3; Rochester Outer Loop (FASH 58-17, FAC 59-8, FASH 59-14) (East Ave. to Winton Rd.) Winton Rd.-Sea Breeze, Pt. 2 (FASH 56-7) Proj. I-490-2(24), U-1097(7)	4.75	Traffic Signs and Delineators	$16,000 Plans $5	112,000
Monroe	M 61-4A	City of Rochester: Sector Gate 2, Court St. Dam on Genesee River	....	Cleaning & Painting Sector Gate 2	$350 Plans $5	6,600
Monroe	LOSP 61-1P FAC 61-8P	Lake Ontario State Parkway (Dewey Ave.-Rochester City Line), Rochester City: Lake Ontario State Parkway Art. Highway, (Rochester City Line—Lake Ave.) Proj. U-1141(3)	1.76 (0.93 Acc.)	Asphalt Conc.= 2.61 Mi.; Misc. Work = 0.08	$30,000 Plans $5	545,000
Ontario (Rte. 21)	FARC 61-55	Bristol, S.H. 187; Cheshire-McJannetts Hill, S.H. 639 Proj. S-387(2)	2.51	Asphalt Concrete	$11,700 Plans $5	213,000
Wyoming (Rte. 19)	FARC 61-63	Warsaw-Gainesville, S.H. 5400 Proj. F-380(8)	0.09	Asphalt Conc.= 0.07 Mi.; Misc. Work = 0.02 Mi.; Prestressed Conc. Beam Br. 53' Sp.	$13,000 Plans $5	228,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Chautauqua (Rte. 17)	FAC 61-10	City of Jamestown: North-South Art. Highway, (Washington St.-Fluvanna Ave.) Proj. U-861(4)	1.89	Asphalt Conc. Type 2A	$56,000 Plans $5	983,000
Chautauqua (Rte. 60)	FARC 61-62	Pratt Corner-Sinclairville, S.H. 1471 Proj. F-1117(3)	0.66	Asphalt Conc.= 0.63 Mi.; Misc. Work = 0.03 Mi.; Triple Reinf. Conc. Closed Box, 3 Sps. 85.16' Tot.	$24,000 Plans $5	443,000
Erie & Niagara	M 61-5	Webster St. Bridge E 248 Over Erie Canal; Tonawanda to N. Tonawanda	....	Cleaning and Painting Twin Bascule Bridge	$600 No Plans 2 Proposals $2	11,500
Erie (Rte. 75)	R.C. 61-45	Athol Springs-Hamburg, S.H. 1067	1.83	Asphalt Conc.= 1.82; Misc. Work = 0.01	$10,000 Plans $5	187,000
Erie (Int. Trg. Rte. 290)	FIPLE 61-1	Interstate Rte. Conn. 590 Powerline Expressway Sect. 2, Contract 1, (Millersport Highway to Main St.) Proj. I-290-1(41)	3.34 (6.50 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var.= 3.14 Mi.; Misc. Work = 0.20 Mi.; Acc.= 4.18 Mi. Cem. Conc. Pavt.; 2.17 Mi. Asph. Conc.; 0.15 Mi. Misc. work; 3 HGS Comp. I-Beam; 3 Sps. 181.22' Tot.; 4 Sps. 316.7' Tot.; 4 Sps. 226.68' Tot.; HGS—Plate Girder, 2 Sps. 214.53' Tot.	$400,000 Plans $10	7,356,000
Erie (Rte. 5)	FATS 61-10	Lake Shore Lackawanna City, S.H. 5019; Athol Springs-Walden Cliffs, S.H. 5407 Proj. U-750(24)	1.32 (1.10 Acc.)	Traffic Signs & Delineators	$750 Plans $5	13,000
Erie (Rte. 5)	R.C. 61-44	Southwestern Boulevard, Pt. 9, S.H. 1852	2.02	Asphalt Concrete	$12,000 Plans $5	218,000
Niagara (Rte. 425)	R.C. 61-61	North Tonawanda-Shawnee, S.H. 713; Shawnee-Cambria, S.H. 729	6.06	Asphalt Concrete Type 1A	$43,000 Plans $5	790,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clinton (Rte. 22)	R.C. 61-38	Plattsburg-Mooers, Pt. 1, S.H. 138; Plattsburg-Mooers, Pt. 3, S.H. 260	7.69	Asphalt Concrete Type 1A	$20,000 Plans $5	364,000
Clinton (Rte. 348)	R.C. 61-39	Rouses Point Village, S.H. 5228, Rouses Point-Canadian Line, S.H. 5337	2.34	Asphalt Concrete Type 1A	$7,000 Plans $5	125,000
Clinton (Rte. 9B)	R.C. 61-40	Chazy-Rouses Point, S.H. 5199	3.58	Asphalt Concrete Type 1A	$11,500 Plans $5	214,000
Clinton (Rte. 191)	R.C. 61-41	Altona-Obers Corners, S.H. 1488	0.49	Asphalt Concrete Type 1A	$5,000 Plans $5	90,000
St. Lawrence, U.S. Grenville, Canada	OBA 61-7	Ogdensburg Bridge: Canadian & U. S. Approaches	2.40	Traffic Signs	U. S. $1,300 Plans $5	U. S. 23,000
Lewis (Rte. 26)	R.C. 61-47	Ava-West Leyden Pt. 2; West Leyden-Constableville Pt. 1, S.H. 8305; Constableville-Lyons Falls, Pt. 1, S.H. 1600	3.44	Asphalt Concrete Type 1A	$9,000 Plans $5	152,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Dutchess	FAC 61-11	North-South Arterial Highway City of Poughkeepsie Proj. U-322(20)	2.30	Demolition	$11,000 Plans $5	193,000
Orange	FAC 61-7	City of Newburgh: South Street Arterial Highway Proj. U-543(10)	1.88	Asphalt Concrete = 1.88 Mi.; H.G.S.-1 Span-Reinf. Conc. Rigid Frame—68.7'	$70,000 Plans $5	1,280,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 26)	R.C. 61-50	Whitney Point Village-Hickory St., S.H. 1612; Whitney Point-Upper Lisle, S.H. 858; Upper Lisle-Willet, Pt. 1, S.H. 9034	2.73	Asphalt Concrete	$7,000 Plans $5	121,000
Delaware	BWS 61-1	City of New York Board of Water Supply, Road No. 1 (Cannonsville Reservoir) City of New York; Board of Water Supply, Road No. 2 (Cannonsville Reservoir)	7.07 (1.89 Acc.)	Asphalt Conc.= 8.23 Mi. Grad., Drain., Temp. Conns. = 0.73 Mi.; Twin Reinf. Conc. Closed Box Br. 34.15' Sp.; Triple Reinf. Conc. Closed Box Br. 27.1' Sp.	$200,000 Plans $5	3,638,000
Delaware (Rte. 10)	R.C. 61-51	Hobart-Stamford, S.H. 952	4.65	Asphalt Concrete	$17,000 Plans $5	302,000

(Continued on the following page)

OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

(Continued from page 100)

OFFICIAL PROPOSALS

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
Otsego (Rte. 28)	R.C. 61-59	Richfield Springs-Schuyler Lake, S.H. 5037; Richfield Springs-Schuyler Lake, Pt. 2, S.H. 5659; Schuyler Lake-Cooperstown, Pt. 1, S.H. 5686	6.62	Asphalt Concrete	$20,000 Plans $5	360,000
Schoharie (Rte. 10)	R.C. 61-52	Stamford-Summit, S.H. 8201	8.28	Asphalt Concrete	$27,000 Plans $5	482,000
Sullivan, N. Y. Wayne, Pa.	I. BR 61-1	Callicoon Interstate Bridge	0.72 (0.16 Acc.)	Asphalt Conc. Type 1A; Welded Plate Gird. Br., 7 Sps. 135.4' Each	$55,000 Plans $5	967,000
DISTRICT No. 10, A. M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Trg. Rte. 278)	FIBETS 61-1	Interstate Rte. Conn. 516 Bruckner Expressway (Sect. 1, Contract 5,) St. Ann's Ave. to East 135th St. Proj. I-278-1(62)	0.29	Traffic Signs and Delineators	$2,700 Plans $5	50,000
Kings	BP 61-63	Beach Protection at Coney Island	....	Artificial Beach Nourishment	$50,000 Plans $5	875,000
Nassau (Rtes. 25, 106, 107)	FATS 61-11	Massapequa-Glen Cove, S.H. 9017; Jericho-Oyster Bay, S.H. 9021; Jericho Turnpike, S.H. 9020; Jericho Turnpike-Plainview Rd., S.H. 436 Proj. US-377(7), US-500(5), U-1000(11)	3.08	Traffic Signs and Delineators	$7,000 Plans $5	130,000
Queens (Int. Trg. Rte. 78)	FICE 61-1 FAVWE 61-1	Interstate Rte. Conn. 513 Clearview Expressway (Hillside Ave. to 73rd Ave.) Van Wyck Expressway Extension (57th Avenue to Union Turnpike) Project EI-78-1(61), U-1085(19)	3.83 (7.81 Acc.)	9" Cem. Conc. Pavt. = 3.10 Mi.; Colored Cem. Conc. Pavt. = 2.36 Mi.; Asph. Concrete = 1.19 Mi.; Misc. Work = 0.22 Mi.; Embankment and Surcharge = 4.77 Mi., HGS Plate Gird. 124' ± Sp.; 2 HGS Comp. Beam 1 Sp. 83' ±, 2 Sps. 122' ± Tot.; 1 Equestrian Underpass Overpass-Simple Beam, 2 Sps. 69' ± Ea.; HGS—4 Level Structure Plate Girder, 4 Sps. 415' Tot.; WF Beam 4 Sps. 282' Tot.; Plate Girder 2 Sps. 248' Tot.	$675,000 Plans $10	12,589,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: May 31, 1961

Virginia State Ports Authority

NOTICE TO CONTRACTORS

The Virginia State Ports Authority will receive sealed bids at its office on the 16th Floor, Maritime Tower, Norfolk, Va., until 2 P.M. (EST) May 31, 1961, at which time and place they will be publicly opened and read, for the fabrication, delivery, and installation of two Gantry Mounted Revolving Cranes on a pier to be constructed at Lamberts Point in the City of Norfolk.

Plans and specifications are on file and available for inspection at the office of the Virginia State Ports Authority, in Norfolk, Va., New York, N. Y., or Chicago, Ill., at the offices of Lockwood Greene Engineers in Spartanburg, S. C., or New York, N. Y.; at the office of Blackburn and Blauvelt in Richmond, Va.; or at the office of the Chief Engineer, Norfolk and Western Railway Company, Roanoke, Va.

Contractors interested in bidding on this work should make application to Lockwood Greene Engineers, 1020 Montgomery Building, Spartanburg, S. C., enclosing a deposit in the amount of $50 for necessary bidding material. This deposit will be returned to any bidder if plans and specifications are returned in good condition. Additional copies of the plans and specifications may be purchased from the Engineers for the cost of reproduction.

6% bid bond will be required from all bidders. Performance and payment bond will be required from the successful bidder. It is expected but not guaranteed, that contract will be awarded to the lowest responsible bidder approximately 120 days after the date of opening above specified.

Bids: May 16, 1961

Request for Bids for Removal of Bridge

Sealed proposals will be received at the office of Wm. J. Hedley, Chief Engineer, Wabash Railroad Company, Railway Exchange Building, St. Louis 1, Missouri, until 12:00 Noon (C.S.T.) on the 16th day of May, 1961, for the removal of the entire structure of a double track railroad bridge 330 ft. long, over the Calumet-Sag Channel near Palos Park, Illinois. Plans, specifications and other information concerning this project can be obtained from the office of the Chief Engineer, Wabash Railroad Company, 1551 Railway Exchange Building, St. Louis 1, Missouri, upon payment of $5.00 per set.

(Continued on page 106)

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

• POSITIONS VACANT

Senior Public Health Engineer to direct Division of Sanitation with generalized program in well established County Health Department. Population: 80,182. Vacation cumulative to 25 days, sick leave, retirement, longevity benefits. Salary: open. Must have P.E. in N.Y.S. within 1 year and 5 years of satisfactory sanitary engineering experience. Cattaraugus County Health Department, 302 Laurens Street, Olean, New York. Send application to Dr. Meredith Thompson, 84 Holland Avenue, Albany, N. Y. for approval.

Chief Engineer—Experienced man of mature judgment approximately 45 to 55 yrs. of age to coordinate the design work and exercise general supervision of production activities for a substantial architectural engineering firm in the South. Industrial plants and all allied types of work. Write Box 889, Boston, Mass.

Structural steel detailers and checkers, growing company, permanent work. P-6401, Engineering News-Record.

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-6498, Engineering News-Record.

Help Wanted—Reinforcing Steel Detailer with a minimum of four years experience. Contact Mr. Dewey Owens, Brocker Mfg. & Supply Co., York, Pennsylvania.

Mechanical Engineer-Experienced in design and maintenance of industrial heating, air conditioning and steam distribution systems for a large medical research center. Excellent opportunity to grow with organization. Beginning salary $8,955. Federal Civil Service Merit System position with all retirement, leave and insurance benefits. Relocation expenses reimbursed. Write Mr. Ross Holliday, Plant Engineering Branch, National Institutes of Health, Bethesda 14, Maryland.

Soils Engineer, Graduate Civil Engineer with field experience in foundation investigation, testing, and laboratory management. Will supervise field exploration and soils laboratory testing for highway construction. Required to analyze field information and test data to develop design criteria and recommend construction technique. Salary, to be negotiated depending on experience. Location, Intermountain West. P-6187, Engineering News-Record.

Structural Engineer-Midwest consulting firm seeks Ph.D. to design complex steel structures, reinforced and prestressed concrete. Preference will be given to applicants with practical experience. Permanent position with established firm in business since 1929. Moving expenses paid. Send resume, including education, experience, and personal qualifications to P-6245, Engineering News-Record.

Overseas Position: Water supply, planning and design engineer. Consultant to advise Peruvian Inter-Ministerial Committee of highly qualified sanitary and hydraulic engineers in the development of a national water supply plan for Peru. Must be well qualified in broad planning aspects of small and medium-sized city water systems with particular emphasis on design and financing, as well as administration of large country plan. Must be able to work on high policy level. Headquarters: Lima, Peru. Salary $10,000 to $14,000 (dependent on qualifications) plus allowances. Write Box ENR-4, Office of Public Health, International Cooperation Administration, Washington 25, D. C.

Need prestressed concrete plant manager. Send all qualifications and experience record. Location S. E. Replies confidential. P-6503, Engineering News-Record.

Structural Engineers—Several immediate openings with New York City Consultant for graduate engineers preferably with experience in bridge design. Submit resume and salary expected. P-6379, Engineering News-Record.

Civil Engineer—Young, energetic, to work on construction jobs. Previous experience not necessary. P-6557, Engineering News-Record.

(Continued on following page)

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE

The advertising rate is $45.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

MAY 4TH ISSUE CLOSES APRIL 24TH

UNDISPLAYED RATE

$2.70 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

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Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36

• POSITIONS VACANT (CONTINUED FROM PRECEDING PAGE)

Permanent Position: Structural engineer with at least an M.S. degree from well recognized engineering school. Well grounded in the Theory of Elasticity to handle complex indeterminate structures. Excellent living conditions, good future for young and responsible engineer. Submit Graduate School credits. Location, North Carolina. P-6338, Engineering News-Record.

Estimator—Quantity takeoff, some pricing. Work under chief estimator. Some travel. Young engineer preferred. Nationwide contractor, home office Northern Ohio. P-6552, Engineering News-Record.

Soils Stabilization Engineer, college graduate with experience in highway soils or soil stabilization. Both field and laboratory experience desirable. Technical service position involving combination of staff and field work on highway chemicals for soil stabilization, dust control and ice control supporting national sales organization. Send resume to P-6549, Engineering News-Record.

Bridge Engineer and Junior Structural Engineers — Positions open in Southern Connecticut firm. Send complete resume on experience, references, salary requirements and availability to P-6554, Engineering News-Record.

Teaching Position Available: Construction Technology Division, two year Technical Institute. Appointment at Instructor, Assistant Professor, or Associate Professor. Salary and rank dependent upon qualifications. Teaching position in Architectural Drafting and Construction Methods and Materials areas. Minimum education of Bachelors Degree in Engineering, Architecture, or Construction; Advanced degrees necessary for higher ranks. Experience in Construction and/or Teaching preferred. For additional information and application forms write to — Mr. Peter C. Clifford, Chairman, Construction Technology Division, SUNY Agricultural & Technical Institute, Delhi, New York.

Position with Columbus, Ohio construction firm. Require Registered Civil Engineer. Age preferred, 30-45. Experience must be all inclusive. Bid to completion. Submit resume to P-6556, Engineering News-Record.

Junior Engineer or Draftsman—Permanent position available immediately. Our company is engaged in the construction of buildings for all purposes, using the Butler pre-engineered Systems Building. Duties involved will include floor plans, elevations and perspectives to be used by our sales department, and details for construction purposes. The man we hire should be able to do take-off and estimating and follow a job through to completion; including purchasing of materials and services. Person selected will work under direction of Chief Engineer. Submit complete resume, references and salary requirements. Mendota Building Service, Inc., Mendota, Illinois.

Engineering Editor, career opportunity with wastewater monthly. Experienced Sanitary Engineer familiar with waste water treatment plant operation. Editorial experience desirable. Salary open. Write: Water Pollution Control Federation, 4435 Wisconsin Ave., Washington 16, D. C.

Estimator, Office Engineer. Experienced in commercial & industrial building construction. Permanent position with progressive contractor North Central Conn. State availability & minimum salary requirement. P-6568, Engineering News-Record.

• EMPLOYMENT SERVICE

Recession's on! Study the job market carefully, before changing. Write for free copy. National Employment Reports, 20 E. Jackson, 902-B, Chicago 4, Ill.

• POSITIONS WANTED

Construction Engineer, 38, 12 years field inspection, and supervision for commercial, industrial, hydro-electric and marine construction. Specialized in concrete mix design and control. Some prestressed concrete, soils and piling. Fluent Spanish. Available April 15 for foreign or domestic assignment in field, development or sales. Resume on request. PW-6474, Engineering News-Record.

Project Manager, Complete Administration and supervision incl. negotiations & estimating 24 yrs. hvy. constr. major projects U.S. & O.S. PW-6472, Engineering News-Record.

Chief Estimator—Civil Engineer, age 37. Field experience from layout engineer to superintendent. PW-6495, Engineering News-Record.

Chief Estimator, Building Construction. Extensive competitive experience on all types, can take full charge of bid, take-off to completion. Successful record. Resume and highest references upon request. PW-6494, Engineering News-Record.

Construction Co. Executive, BSCE, MBA, PE, 13 years experience as Field Engineer, Superintendent, Estimator-Project Manager, Gen'l Superintendent, Partner and Vice President. Age 38. Present salary $18,000. Capable of complete firm management. PW-6486, Engineering News-Record.

Structural Engineer, C.E., P.E., age 38, 14 years foreign and domestic versatile design experience in steel, reinforced and prestressed concrete structures and bridges. Relocate anywhere. PW-6508, Engineering News-Record.

Civil Engineer—Six yrs. varied experience. Structural design with emphasis on sewage disposal plants. Sewers design and layout. Programing engr. problems IBM-650. PW-6497, Engineering News-Record.

Superintendent, 29 years experience heavy construction, highway grading, flood control, bridges, asphalt paving. Location immaterial. Reply PW-6493, Engineering News-Record.

Engineer:-B.S., M.S., RLS (Md. & Va.). 20 yrs. exp. highways, estimates, soils. Seeks job as Field or Layout Engr. or Party Chief. Will accept temporary job. Age 60. $150 per week. PW-6413, Engineering News-Record.

Available-Engineer Executive. Registered Civil and Structural. F. ASCE, NSPE. Mature and well experienced in Owner, Contractor and Public Relations. Also Supervision, including approvals. Prefer medium sized responsible Architectural-Engineering firm. Would like to invest a part of salary in the firm. PW-6467, Engineering News-Record.

B.S.C.E., P.E., 32, 6 years exp. inspection, storm sewers, highways. Desires position West, Southwest. PW-6299, Engineering News-Record.

Chief Estimator-Engineer 20 years experience in engineering-construction field. Ten years in estimating, the last six as chief Estimator. Experience primarily in bulding and heavy construction. Desire greater challenge. PW-6440, Engineering News-Record.

Experienced Blasting Foreman with license. Any type rock, immediately available. PW-6518, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

• POSITIONS WANTED

Erection or Mechanical Supt.—30 yrs. exp. in administering, supervision and handling of all phases of erection, repair and maintenance of power boilers and component parts, heavy mechanical machinery for cement & lime plants. Coordination of HVAC trades on Public & Industrial bldgs., Chemical Plants & Hospitals. PW-6524, Engineering News-Record.

Chief Estimator—25 years experience all phases Building and Heavy Construction—qualified to handle job from bidding to completion—available imediately—will relocate to suit. PW-6550, Engineering News-Record.

General Superintendent — Proj Mgr, Hvy Const, roads, bldgs, flood control, tunnels, excellent mech. background, P. O. Box 48, St. Louis 5, Mo.

Civil—Structural, BCE, 38, Registered 8 states, 13 years industrial planning and design experience. Presently self employed. Desire permanent position with responsibility and future. Will invest. Will relocate. PW-6558, Engineering News-Record.

B.S.C.E. 30, 2 yrs experience building construction & estimating. 1½ yrs experience in design and plant engineering. Structures, piping and heavy machinery installation in a nuclear reactor facility. AEC "Q" clearance. N.E. area preferred. PW-6528, Engineering News-Record.

Available for Top Overseas Job—M.S.C.E. 53 years, aggressive. Extensive experience in design and supervision highways, railroads, foundations, etc. Specializes in bridges. Successful record of foreign assignments both design and contract administration. First class knowledge Spanish, French. Available now after completion of overseas contract. PW-6537, Engineering News-Record.

B.S.C.E.-M.S.-L.L.B. — age 28. Feb. 61 graduate. Contract administration and construction experience. Interested in learning of employment opportunities. PW-6526, Engineering News-Record.

General Superintendent—41. C.E. Registered. Good record in all phases of construction from estimating to supt. multi-million projects. Desire position as Gen. Supt. or right-hand-man to smaller company. PW-6553, Engineering News-Record.

Chief Maintenance Engineer, available May 1st. 30 yrs. experience estimating, planning and scheduling large operations. Min. $8,000 yr. PW-6560, Engineering News-Record.

Mechanical Designer, 20 yrs. exp. plumbing, htg., air cond. & industrial piping. Prefer Southern location. PW-6562, Engineering News-Record.

Project Manager—Construction Supt. Available immediately. 25 yrs experience all types construction. Complete job management. PW-6564, Engineering News-Record.

PE-BCE desires overseas position with contractor, consultant, government. Eight years experience all phases asphalt paving. Generally capable, willing to diversify. PW-6569, Engineering News-Record.

POSITION WANTED

PORT DIRECTOR & ENGINEER, 41

Experienced in planning and profitable operation of multi-million dollar marinas, terminals, industrial parks and dredges. Can leave present 17M job in 3 months. Struct. Eng'r. Will travel.

PW-6533—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ELECTRICAL ENGINEER

24 Month Contract on Transmission Lines and Substation Construction in Thailand

Interesting opportunity for graduate Electrical Engineer with a minimum of five years experience on steel tower transmission line and substation construction. To supervise and inspect construction of a 230 KV transmission line and the installation of circuit breakers, shunt reactors, synchronous condenser and protective equipment for 69 and 230 KV substations.

Applicants must pass physical examination and security investigation.

Submit complete resume to:

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An *engineer-editor* on a top magazine goes hand-in-hand with interest, growth and challenge. In such a position, you meet and mingle with the top brains in your field. You'll be "in the know" about new developments by getting the facts and evaluating them for other engineers. You'll see your work in print. If you like engineering but crave work that is imaginative, timely and exciting, you may be one of the engineer-editors we are looking for.

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McGraw-Hill Publishing Company
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New York 36, New York

ENGINEERS

Civil or Hydraulic Engineers with or without design experience in hydraulics, concrete or soil mechanics, for work on the design of hydraulic structures in Pennsylvania. Salary to $9000. State experience, salary requirements and references.

Commonwealth of Penna.
Dep't. of Forests and Waters
Harrisburg, Penna.

STRUCTURAL ENGINEER

Structural Steel Fabricator seeks men desiring permanent position in structural steel and steel plate estimating and designing. Desires men with minimum of five years experience in this type of work. Send resume including education, experience and personal qualification to

P-6532, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

SENIOR CONTRACTING ENGINEER
CHICAGO LOCATION

Responsible for accurate and effective handling of contract documents beginning at the inquiry stage, through estimating, proposal preparation and coordination with Sales Department during final presentation. This involves direct customer contact and close liaison with all departments. Must have university degree in Civil or M.E.

P-6544—Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

THIS EMPLOYMENT OPPORTUNITIES SECTION offers a quick, effective solution to your manpower problems. Because its readership is confined to just the type of men you need, waste circulation is avoided.

SENIOR CONTRACTS ESTIMATOR

A large steel plate fabricator in the Chicago area requires an engineer to be responsible for the development of standards and procedures which permit the company to bid as a general contractor where our products are a dominant portion of the job. He will be responsible for developing costs of foundations, earth work, painting, auxiliary electrical, etc. In addition, this position includes participation in bids prepared as joint ventures. This position will carry supervisory responsibilities by projects. A candidate should have a technical degree from a fully accredited university — preferably Civil Engineering with a major in structures, soil mechanics or concrete. He should have at least 5 years of estimating experience on general construction projects. In the absence of full academic compliance, specific experience may be substituted. This position carries a nine to twelve thousand dollar starting salary. Please reply sending complete resume to

P-6543, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DRAFTSMAN

For detailing Reinforcing Steel, Steel Joists, and similar products. Only those experienced in this or allied fields will be considered. Permanent position, air-conditioned office, 40 hour week, retirement plan, paid vacations, hospitalization and Group insurance plans. Location Richmond, Virginia.

Reply giving brief resume of experience, education and salary expected.

P-6540, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

OPPORTUNITY

SALES MANAGER, Age 35 to 43
Salary + Expenses + Bonus
Can Purchase Part Interest on Earnings.
LOCATION—Eastern New York State

Long Established Business. Distributorship Heavy Construction Machinery.
Tractors, Excavating Machinery, Aggregate, Asphalt and Concrete Processing Plants.
Preference experience in design and Estimating and selling aggregate, and Asphalt and Concrete Plants.
Eligible candidates reply immediately.
All information furnished to be held in strict confidence.

P-6538, Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

DIRECTOR OF PUBLIC WORKS
for Wakefield, Mass.

The Board of Public Works, Town of Wakefield, Massachusetts, will receive applications for the position of Director of Public Works until April 24, 1961.

Applicant must be experienced in municipal engineering and public works administration. All applications should include a resume of education, previous experience and other qualifications.

Apply to:

BOARD OF PUBLIC WORKS
Lafayette Building
Wakefield, Massachusetts

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25 Ton Radial Cableway, Morrison, 1050-ft. span, 3" main cable carriage, 63-ft. high self-propelled head tower, tail tower, 3-drum Washington hoist. 500 HP motor & MG set, elec. controls
1703 CFM Compressor, Joy WN-114, S/N 57147, 300 HP elec. motor
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(CONTINUED FROM PAGE 101)

Bids: April 27, 1961

Power Authority of the State of New York

NIAGARA POWER PROJECT
ADVERTISEMENT FOR PROPOSALS FOR CONSTRUCTION OF GREENS, TEES AND BUNKERS FOR THE HYDE PARK GOLF COURSE IN NIAGARA FALLS, NIAGARA COUNTY, NEW YORK
SPECIFICATION NO. PA-N-23047
NIAGARA CONTRACT NO. N 38

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the construction of greens, tees and bunkers for the Hyde Park Golf Course in Niagara Falls, Niagara County, New York, until 10:30 A.M., Eastern Standard Time on the 27th day of April, 1961, at the Authority's Office, 18th Floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are: Estimated:

15 Greens
21 Tees
16 Fairway Bunkers

All work shall be completed on or before September 15, 1962.

Plans, specifications and proposal forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, specifications and proposal forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the total of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: May 11, 1961

The Port of New York Authority

ADVERTISEMENT

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract NYA-140.048—New York International Airport—Boundary Fencing—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday May 11, 1961.

Contract NA-140.019—Newark Airport—Boundary Fencing—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, May 11, 1961.

Contract PN-140.033 — Port Newark — Berths 5, 7 and 9, Upland Area—Demolition, Paving and Utilities—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, May 11, 1961.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, April 20, 1961

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5570) will be received at Rock Springs, Wyoming, until 10 a.m., Mountain Standard Time, May 25, 1961, for furnishing labor and materials for Fontenelle Dam, Seedskadee Project, Wyoming. Location near La Barge, Wyoming, in Lincoln and Sweetwater Counties. Principal items are 5,860,000 cu. yds. excavation; 8,410,000 cu. yds. embankment; 45,500 cu. yds. concrete; and other work. Completion time 1,100 days. For particulars, address Bureau of Reclamation, P. O. Box 360, Salt Lake City 10, Utah; P. O. Box 923, Rock Springs, Wyoming; or Building 53, Denver Federal Center Denver, 25, Colorado. Floyd E. Dominy, Commissioner.

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Editorials

Boston's Blues

ALAS, POOR BOSTON. Bad luck still plagues its plans for traffic relief and urban renewal. This time, investors have shattered its fond dreams: The $175-million bond issue to finance extension of the Mass. Pike into town has failed to sell. And as the turnpike bonds dropped with a dull thud in the investment market, down with them went (at least temporarily) the planned Prudential Center—fates of the two being intertwined legally and financially.

It is sickening to consider poor Boston's present plight. So long has it dreamed and talked of its turnpike extension; so long has the Prudential planned its $150-million center. Indeed Prudential's great renewal project got through $13 million worth of investment—site purchase, demolition, excavation and foundation work—when legalities last stopped everything. Now, with the main legal hurdles apparently cleared, it's for want of investment capital for the turnpike extension that Prudential's renewal project will remain for a while longer just a great hole in the ground.

Why didn't the bonds sell? It is argued that the 11.7-mile tollroad extension into town is too expensive; the investors aren't sure enough that it will pay out—not sure enough, that is, to buy bonds within the 5% limit fixed for the Turnpike Authority's borrowings.

What now for Boston? Must the law be amended to let the Turnpike Authority pay what the market demands for its borrowings? Can investors be inveigled somehow into underwriting this project within the set 5% return?

It is nonsense to argue that this project is too expensive. Boston not only can afford it, but Boston cannot afford much longer to put it off. This job is the first olive the Bostonians must get out of the bottle so that others then can be moved. The state government can help in this matter in one or more ways (see p. 93). And help it must. For Boston is a fine old city; its people mean well but constantly seem fouled up when trying to help themselves.

The planned highway into the Hub surely will be built—eventually. And Prudential will have its center, too, unless we badly underestimate the situation. But the length of time it is taking for both these projects to go through certainly is deplorable.

The Good Guys Win

VIRTUE HAS TRIUMPHED in a modern western melodrama, in which citizens of fabled St. Joseph, Mo., were pitted one against the other in a struggle that brought out federal lawmen. By nearly three-to-one, the good folks of St. Joe have chosen the side of righteousness—voting for a bond issue to build sewage works and stop pollution of the wide Missouri.

Virtue triumphed as the citizens of the city were brought to see the light—after twice voting against financing their needed sewage works.

The upright people of the town rose up to overcome the bad, as it were, once the shiny badge of federal authority flashed brightly enough in the streets of their town.

And as St. Joseph returned peaceably to respectability the federal lawmen rode on to show their authority in other towns (see p. 21), strengthened with new courage from a win in their nearest thing to a showdown yet.

Keep an Open Mind

GOOD ENGINEERING depends heavily on the judgment of the engineer; judgment has its basis in information; and information should be basically facts—not unsupported assumption.

The assumption long has been prevalent that hard-grade reinforcing bars—rolled from rail steel—are brittle and for that reason are unsuitable for use in concrete beams, particularly those that may be subjected to dynamic or blast loading. Tests dating back to 1904 indicate this reinforcing performs well under static loads, but until recently, there were few test data on dynamic loading.

As recently as the statement in the 1950 edition of "The Effects of Atomic Weapons," the Atomic Energy Commission guide to blast loading, it was contended that structural or intermediate-grade steel is much better for reinforcement than hard grade. This statement was eliminated from the 1957 edition after investigation failed to disclose evidence supporting it.

Now, data have become available on the behavior of beams reinforced with hard-grade steel and subjected to blast loading. These data offer no evidence of brittle failure. On the contrary, the behavior of the high-elastic-limit steel may be considered superior to that of the other grades in tests in which the AEC Civil Effects Group exposed reinforced concrete beams to nuclear blast. (Report WT-1473, "Comparison Test of Reinforcing Steels," Office of Technical Services, Department of Commerce, Washington 25, D. C., $2.25.)

Back in 1934, researchers H. J. Gilkey and G. C. Ernst pointed out that it is reasonable not to expect brittle failure in reinforcing steel: "The steel is packed in a matrix of concrete through which all stress has to be applied. The concrete is relatively friable and is more brittle than the steel. It seems inevitable that the concrete would have to be thoroughly shattered before steel of any grade could be damaged from impact applied through concrete."

The evidence to date may not be substantial enough to squelch all doubts about hard-grade steel. But it is ample to convince engineers with open minds that fear of brittle failure of reinforcing in concrete is not justified by the facts.

Owner: Federal Aviation Agency; **Consulting Engineer:** Ammann & Whitney, New York, N.Y; **General Contractor** runways and turnoffs: C. J. Langenfelder & Sons, Inc., Baltimore, Md.

Concrete at new Dulles International Airport, Chantilly, Virginia, was centrally mixed and carried to the site in dumpcrete trucks.

High Speed paving with PLASTIMENT

Concreting the two-mile runways at the huge new Dulles International Airport near Washington, D. C., presented two major problems to the paving contractor: (1) limited workability at specified water cement ratio, and (2) rapid surface drying at high summer temperatures. Anticipating these problems, the consultants specified a retarding densifier to be used in variable proportions.

Plastiment Retarding Densifier produced the needed workability at 1-1/2″ slump. Rapid, clear-water bleeding eliminated premature drying and provided sufficient moisture at the surface of the slab for proper finishing.

Compressive strength developed rapidly, averaging 2300 psi at 24 hours and 4200 psi in 3 days.

Plastiment features are fully detailed in Bulletin PCD-59. Ask for your copy. Offices and dealers in principal cities; affiliate manufacturing companies around the world. In Canada, Sika Chemical of Canada, Ltd.; in Latin America, Sika Panama, S. A.

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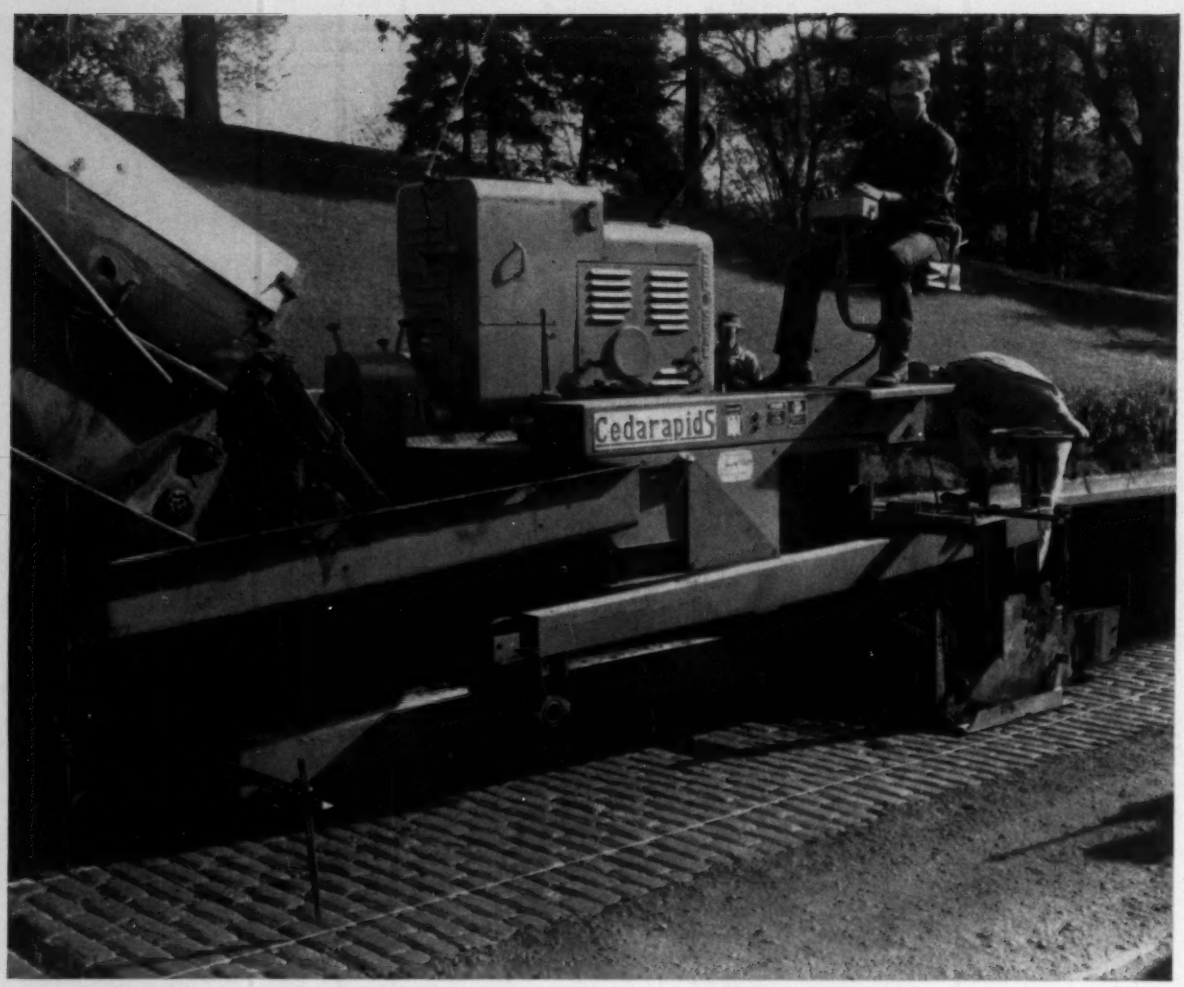

How Cedarapids paver turns rough road into easy street

This electrically controlled Cedarapids paver can turn any rough road into a smooth bituminous surface at speeds up to 102 ft. per minute. The steering of the paver imposes heavy thrust loads on the crawler track bearings. To take this punishment and keep it paving without delay, its builder—Iowa Manufacturing Company—specified Timken® tapered roller bearings for the track drive sprockets and track takeup idlers.

Timken bearings solve load problems because their tapered construction lets them take any combination of radial and thrust loads. They keep sprockets on track assemblies properly aligned. Because of their separable components, Timken bearings make assembly easier and more economical. And they make sealing more effective in keeping lubricant in, dirt out. Performance stays up, maintenance down. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits. Canadian Division: Canadian Timken, St. Thomas, Ontario.

TO HELP SOLVE CUSTOMER BEARING PROBLEMS we use advanced testing equipment in our modern laboratories. It not only serves customers, but furthers our program of improving Timken bearings.

Industry rolls on

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